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Descriptions

OF

Three Hundred New Species of South American Plants

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INDEX TO PREVIOUSLY PUBLISHED SOUTH AMERICAN SPECIES BY THE SAME AUTHOR.

BY

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Three Hundred New Species of South American Plants

Xanthosoma (§ Acontiam) bilineata.

Glabrous. Corm 3.5 cm. broad, 2.5 cm. high, the roots dense on sides and base. Petioles about 4.5 dm. long, the lower half gradually dilated and sheathing at the base. Blade 15 to 20 cm. long from summit of petiole, the lateral lobes extending about 5 cm. farther down, its extreme width 2.5 to 3.5 dm. Middle lobe 12 to 15 cm. broad, ovate with an abrupt very short triangular acute acumination. Lateral lobes 14 to 18 cm. long, 7 to 9 cm. wide, inequilaterally ovate, acutish, the base somewhat angular or lightly hastate. Leaf thin, the primaries broad, flat, the secondaries of the middle lobe about 12 on a side, of the lateral about 10, somewhat decurrent on the primary, widely spreading, little curved, the marginal line double, a strong undulating one 3 mm. from the margin, a more slender one at the margin, the intervening fine venation very loose and slender. Peduncle (only one seen) 18 cm. long, stout, erect. Tube of spathe 3 cm. long, 12 mm. wide, as pressed, the limb 8 cm. long, 2 cm. broad in the closed and pressed state, acuminate and acute, white. Dissection material wanting.

"Spathe white. In a plantain patch, shady open ground in a damp place at Onaca, 2500 feet. Abundant, August 16." (Herbert H. Smith, Colombia, No. 2475.)

Tillandsia (§ Pseudocatopsis) triangularis.

More or less finely furfuraceous, especially above. Leaf bases forming a dense imbricated mass, 8 cm. broad, 10 cm. high; triangular, flat, 3 cm. wide, abruptly contracted into the leaves which are 7 to 12 cm. long, and about 4 to 6 mm. wide, tapering to a fine point, the nerves very numerous and fine. Peduncle and panicle each about 15 cm. long, the scales of the peduncle closely appressed, 2 cm. long, ovate, acute. Branches of the panicle close together, 3 to 6 cm. long, simple, subtended by bracts similar to those of the peduncle, the flowers distichous, thick, about 3 to the cm. Floral bract 6 mm. long and broad, obovate with sub-truncate, minutely mucronulate summit, about 20-nerved. Calyx 5 mm. long, the sepals ovate, obtusish, nearly as broad as long, not keeled, the nerves obscure. Corolla and stamens 5 mm. long, the petals oval with rounded summit, nearly twice the length of the stamens, the

anthers ovate, acutish, about as long as the filaments. Style about equaling the stamens, stout. Capsule 13 to 15 mm. long.

Collected by M. Bang, near Cochabamba, Bolivia, without number. Specimen unique.

Species near *T. homostachya* André.

Tillandsia attenuata.

Finely and densely furfuraceous. Leaves from a very short thick caudex, 2.5 to 4 dm. long, 7 or 8 mm. wide, regularly attenuate from the base to the filiform summit, light-green, Peduncle (but one seen) 15 cm. long, stoutish, densely clothed with bracts similar to the leaves, some of them exceeding the inflorescence. Panicle 6 cm. long, the branches to 2.5 cm. long, crowded, erect-spreading, distichous, the flowers imbricated. Floral bracts about 1 cm. long, broadly ovate, acutish, strongly ribbed, the keel muricate. Flowers apparently shorter than the scales. Dissection material wanting.

"On a tree in the forest near Manzanares, 3500 feet, December 9. No duplicate." (Herbert H. Smith, Colombia, No. 2857.)

Tillandsia (§ **Platystachya**) **marantoidea.**

Glabrous. Caudex stout, 15 to 20 cm. long, 2.5 cm. thick, densely clothed with fibrous remains of leaf bases. Leaves about 6 dm. long, 10 to 12 mm. wide, long-attenuate at the summit, bright-green, finely many-nerved, dilated at the sheathing base. Peduncle about 4 dm. long, bearing about 7 sheathing bracts 6 to 15 cm. long, which taper regularly from the base to the attenuate rigid apex, strictly erect. Rachis about 4.5 dm. long, forming a loose open panicle, the longest branches about 1 dm. long, the lower successively shorter and distant, the upper successively more approximate, some of them again branched, the flowers about 1 cm. apart. Bracts 13 to 15 mm. long, the inner a little shorter, obtusish, not keeled, strongly many-nerved. Sepals 13 mm. long, 5 mm. wide, lanceolate, obtuse, 10-nerved, not keeled. Corolla 16 mm. long, the claw 9 mm. long, the limb spatulate, obtuse, 4 mm. broad, 10-nerved, the nerves in pairs. Stamens 3 mm. shorter than the corolla, the anthers 3 mm. long, lanceolate, attached just below the middle to the broad filament. Ovary ovoid, obtuse, 3 mm. long. Style spirally twisted at the base.

Miguel Bang, Bolivia (No. 2570).

Species near *T. rubra*.

Dioscorea recurva.

Staminate Plant.—Inflorescence very minutely roughened. Branchlets rather stout, 6-angled and sulcate, the angles sharp.

Petioles 6 to 8 cm. long, narrowly channeled above, strongly sulcate, the blades 1 dm. long from petiole to summit, ovate, regularly cordate, the rounded basal lobes descending 2 cm. below the summit of the petiole, the sinus about 1 cm. broad, rounded above, the summit of the leaf abruptly contracted into a deltoid very acute point, the blade thin, 7-nerved, with an additional pair into the basal lobes, the nerves slender, lightly prominent above, sharply so underneath. Racemes simple, mostly solitary, 1 to 2 dm. long, nearly sessile, the rachis sharply angled, rather closely flowered, the lower portion falcately curved, roughened by the flower scars and the persistent subulate bractlets, which are about 2 mm. long. Flowers mostly solitary on recurved pedicels about 1.5 mm. long, the flowers about 5 mm. broad, dark-colored, the bractlets triangular-ovate, acuminate and acute, as long as the pedicels. Perigone lobed nearly to the base, the lobes broadly ovate with rounded summit. Stamens 6, half the length of the perigone tube, the filaments broad, connate below, the anthers large, their cells contiguous. Staminodia none.

Pistillate Plant.—Racemes solitary or 2 or 3 together, 2 dm. or more long, very slender, terete, peduncled, loosely flowered, the bracts similar to those of the staminate plant, about half the length of the ovary, which is lance-linear, about 3.5 mm. long, strongly nerved. Perigone 1 to 1.5 mm. broad, the lobes broadly ovate, obtuse. Styles united about half-way, the summits recurved, stout, entire. Fruits 13 mm. long, a little more than half as broad, elliptical, tipped with the persistent perigone.

The staminate plant is the type. Of it, Smith says "Twining to 15 feet, in damp forest near Agua Dulce, 2200 feet, October 19." (Herbert Smith, Colombia, No. 2557.) Of the pistillate plant, "A vine to 15 feet, in dry forest near Bonda, 150 feet. November 16. Probably the same as No. 2557." No. 2633.)

Dioscorea frutescens.

Pistillate Plant.—Glabrous, the branchlets very stout, lightly but sharply angled. Petioles about 3 cm. long, very stout, channelled, many-nerved. Leaves thick and rigid, 5 to 8 cm. long, 4 to 7 cm. broad, ovate, broadly and shallowly cordate with rounded lobes and acute sinus, abruptly and very shortly acuminate and acutish at the summit, flabellately 7 to 9 ribbed, the ribs and finely reticulate venation very prominent underneath. Racemes solitary or 2 together, 12 to 18 cm. long, rather long and stoutly peduncled, rather closely flowered, the peduncle angled, the rachis striate, the flowers sessile, the lanceolate, attenuate, brown, roughish bractlets more than

half the length of the ovary, which is 3 mm. long, dark-brown, lanceolate sharply angled, and roughish. Perigone 4 or 5 mm. broad, dark-colored, the lobes ovate, obtuse, pubescent within. Styles stout, entire, obtuse, strongly recurved, united only at the very base.

Staminate Plant.—(Only young inflorescence seen) Racemes 2 or 3 together, in the young state not longer than the leaves, the rachis puberulent. Bractlets similar to those of the pistillate flowers, longer than the stout pedicels. Perigone pilose within. Stamens 3, too young for their characters to be determined.

"A vine to 10 feet, of scrubby growth. San Lorenzo Ridge, 6500 feet, February 27. Not common." (Herbert Smith, Colombia, 2299.)

Dioscorea truncata.

Staminate Plant.—Glabrous, the branchlets slender, finely sulcate, the internodes about 5 cm. long. Petioles about 15 mm. long, slender, slightly broader toward the summit, narrowly channelled. Blades 5 to 7 cm. long, 2.5 to 4 cm. broad, ovate, the base from truncate to very shallowly and broadly cordate, acuminate and attenuate at the summit, very thin, 5 to 7 nerved, the venation very finely reticulate. Racemes numerous, 7 to 10 cm. long, very slender, short-peduncled, bearing the flowers mostly 2 together on a slender peduncle about as long as the pedicels or a little shorter and subtended by a scarious lanceolate bract, nearly as long as itself. Pedicels about 1.5 mm. long, slender, the flower nearly 3 mm. broad, the perigone lobes nearly twice the length of the tube, lance-ovate, obtuse. Stamens 6, distinct except at the very base, the slender filaments as long as the perigone-tube, the anther-cells contiguous. Staminodia none.

Pistillate Plant.—Racemes 15 to 20 cm. long, slender, loosely flowered, slenderly peduncled. Flowers sessile or the short pedicels adnate to the rachis, the bractlets ovate, scarious, about 2.5 mm. long. Ovary 5 mm. long, linear, pubescent, the perigone 2 mm. broad, the tube crateriform, ribbed, the lobes lanceolate, obtuse. Defective stamens 6. Three styles united, except at the summit, where they are 2-lobed. Fruit 18 mm. long, 10 mm. broad, elliptical, light-brown, glabrous, tipped by the persistent perigone.

Of the staminate plant, Smith says "Twining to 15 feet, common in thickets below 1500 feet. Collected at Cienaga, near sea-level, Sept. 10." Of the pistillate plant, "Thickets near the coast, Playa Brava, Nov. 17." Herbert Smith, Colombia. (No. 2302.)

Dioscorea Herbert-Smithii.

Inflorescence and veins of lower surfaces of young leaves minutely puberulent. Branchlets slender, terete, the internodes about 7 cm. long. Petioles of full-grown leaves 5 cm. long, narrowly channelled above and sulcate on the sides, the blades 7 to 12 cm. long, 4 to 10 cm. broad, regularly ovate and cordate, the basal lobes regularly rounded, broader than the sinus, which is also rounded, the summit abruptly short-acuminate and very acute; 5-ribbed, the 2 outer pair basal only, the next pair running almost to the summit where they approach the midrib, the venation dark, broad and flat, crooked. Leaf very thin. The inflorescence leaves of the staminate plant are small and the base is very shallowly cordate, or sub-truncate. Staminate inflorescence sessile, branching at the base into about 5 to 7 racemes which are 5 to 7 cm. long, slender, rather densely flowered, and bearing many small, ovate, scarious bracts at the base. Staminate flowers sessile or sub-sessile, 3 mm. broad, the base 3-bracteolate, the bracts scarious, broadly ovate, obtuse, half as long as the perigone, which is divided half way, its lobes ovate, obtusish. Stamens 6, the broad filaments connate in a short saucer-shaped tube, the anther-cells contiguous. Pistillate flowers similarly bracteolate, the ovary oblong, 3 mm. long, the lobes of the perigone erect, about half as long as the ovary, broadly ovate, obtuse. Staminodia none. Style branches entire.

"Twining to 15 feet in a thicket, border of woods, 6 miles from Mamatoca, 500 feet, April 10. Flowering earlier than 2302." (Herbert Smith, Colombia, No. 2301.)

Dioscorea hastatissima.

(Staminate Plant.)

Inflorescence puberulent. Branchlets elongated and very slender, strongly sulcate, the ridges obtuse, the internodes about 1 dm. long. Petioles 4 to 6 cm. long, sulcate like the branchlets. Blades 7 to 12 cm. long and somewhat broader, 3-lobed nearly to the base, the lateral lobes divaricate, one or both sometimes wanting, the middle lobe 6 to 10 cm. long, 2.5 to 6 cm. broad, regularly ovate, the base little contracted, the summit acuminate and acute, 3-ribbed, the lateral lobes inequilaterally lanceolate, 2-ribbed or with 2 additional lighter ones, acuminate and acute, the coarsely reticulate venation not conspicuous. Axillary inflorescence very loosely paniculate, the racemes 6 to 12 cm. long, very slender, loosely flowered, subtended by thin, weak, lanceolate attenuate bracts about 3 mm. long. Pedicels very slender, 2 to 3 mm. long, their bracts about half as long. Flowers 3 mm. broad, lobed nearly to the base, the lobes oblong, obtusish, with a slender greenish middle

nerve. Stamens 3, very small, the filaments dilated and slightly connate at the base, the anther, cells contiguous. Staminodia none. Pistil not visible.

"Twining to 15 feet. Rare on forest hillside near Madinger Vieja, 1000 feet, November 11." (Herbert Smith, Colombia, No. 2294.)

Renealmia orinocensis.

Fruiting Plant.—Glabrous. Stems short, invested by the cylindrical, reddish, strongly many-ribbed leaf-sheaths. Leaves 4 to 5 dm. long, 5 cm. wide at the broadest part, which is about two-thirds of the way from base to summit, finely many-nerved. Fruiting inflorescence narrowly paniculate, to 15 dm. long, including the long, stout, peduncle, which is 6 or 7 mm. thick, multi-costate, the base sheathed with many short broad scales. Panicle densely fruited, the longer branches 1 dm. or more long, bearing thick ovate acute bracts 6 to 8 mm. long. Pedicels 2 to 2.5 cm. long, slender, somewhat thickened at the summit, minutely puberulent, as is the fruit, which is 10 to 12 mm. long, exclusive of the persistent perigone, 8 or 9 mm. broad, ellipsoidal, bearing about 25 principal ribs, besides a number of lesser ones. Persistent perigone about 6 mm. long, narrowly campanulate. Seeds about 4 mm. long and nearly as broad, irregularly tetrahedral, light-brown, somewhat shining, enclosed closely in a scarious white aril.

Near Santa Catalina, Lower Orinoco, Venezuela, May, 1896, (Rusby and Squires, No. 406.) Species near *R. occidentalis*.

Myrica costata.

Densely and harshly short-hairy, the hairs from minute whitish papillae on the leaf-surfaces. Branchlets stout, densely leafy. Petioles 6 to 9 mm. long, narrowly winged above by the produced leaf-base, carinate. Blades 3 to 7 cm. long, 1.5 to 3 cm. wide, ovate-oblong, acute at both ends, thickish, deep-green or yellowish beneath, finely and sharply serrate, the venation impressed above, strongly prominent beneath, the secondaries about 10 on each side, widely spreading, crooked, purplish, irregularly connecting near the margin and irregularly connected by the crooked tertiaries. Catkins sessile, 2 to 2.5 cm. long, rather loosely flowered, the flowers sessile, the bracts ovate, acute, about as long as the flowers. Fruits spherical, 4 mm. broad, strongly glaucous, deeply rugose, appearing as though sub-tuberculate.

"A shrub of 4 meters, at Unduavi, Bolivia, 3300 meters altitude, November, 1910." (Otto Buchtien, No. 2810.)

Pouzolzia platyphylla.

Minutely strigose and lightly scabrous, only the short top of a single branch seen, this being slender, herbaceous and very leafy. Stipules 5 mm. long, brown, attenuate. Petioles 1 to 8 cm. long, flat, strongly nerved. Blades 1 to 2 dm. long, 5 to 12 cm. wide, ovate, somewhat inequilateral, with broadly rounded and slightly produced base and very abruptly short-acuminate and acute summit, very thin, deep-green, the principal secondaries of the midrib about 2 on each side, the lateral nerves sending off 8 or 10 secondaries on the outer side, all connected by transverse tertiaries. Glomerules very small and few-flowered. Flowers all pistillate. Stigma very small, sessile, oblique. Akene 1.5 mm. long, nearly as broad, acute, much compressed, smooth and shining, thinly margined, whitish. Perigone minutely pilose, nerved.

"A shrub to 5 feet. Rare in sandy and somewhat arid regions near sea-level, and not far from the coast. Collected on low hills, 7 miles east of Cienaga, September 11." (Herbert H. Smith, Colombia, No. 1429.)

Pouzolzia petiolata.

Softly pilose throughout, the hairs of the upper leaf-surfaces sparse, short, strongly appressed. Stipules 4 mm. long, ovate, abruptly contracted into an attenuate summit that is longer than the body, brown with a very strong, darker midrib. Petioles to 4 cm. long, very slender, compressed. Blades 6 to 10 cm. long, 2.5 to 5 cm. broad, ovate wit 1 obtuse base and very abruptly acuminate and acute summit, thin, bright-green above, grayish beneath, 3-nerved, the lateral nerves giving off upon the outer side numerous strongly erect branches, the principal secondaries of the midrib about 3 on each side, with many smaller ones connecting with the lateral nerves, and similar transverse veins connecting the secondaries, the nerves rather broad and flat, 3-striate. Glomerules 3 to 5 mm. broad, dense.

Staminate Flowers.—About 4 mm. long, 4-merous, the sepals ovate, acuminate, strongly concave or saccate, not plicate, puberulent. Pistillate Flower.—Very few, smaller than the staminate, poorly developed, the perigone much like that of the staminate.

"A shrub to 8 feet. Generally in dry ravines in dry forest region, below 1,500 feet. Collected at Bonda, 150 feet, July 25. Variety of 1434 ?" (Herbert H. Smith, Colombia, No. 1435.)

Boehmeria sordida.

Grayish-pilose throughout with appressed hairs, the upper leaf-surfaces sparsely so. Stems stout, more or less obtusely

angled or sulcate. Stipules nearly 1 cm. long, ovate, acuminate and acute, brown, thin, caducous. Petioles to 6 cm. or more long, slender, dilated at the base. Blades 1 to 1.5 dm. long, 6 to 10 cm. broad, oval-ovate with sub-cordate, slightly oblique base and very abruptly short-pointed acute summit, finely crenate-dentate with minutely apiculate teeth and acute sinuses, thin, deep-green above, drying brownish beneath, the upper surface finely bullate by the impressed venation, scabrous, 3-nerved, from the summit of the petiole, the principal secondaries 4 or 5 on a side, strongly falcate-ascending, the venation finely and strongly anastomosing. Spikes one or more in the axils, mostly sessile, 5 to 7 cm. long, rather loosely flowered, the bracts similar to the stipules, the upper successively smaller, the flower-clusters spheroidal, about 3 mm. broad. Plant in mature condition, apparently wholly pistillate. Seed reniform, brown, minutely muricate, 3-nerved along the convexity.

"Cotana, near Ilimani, 2,550 meters altitude, November, 1910. A shrub, 3 to 4 m. high." (Otto Buchtien, Bolivia, No. 3151.)

Pilea macrophylla.

Minutely puberulent under the microscope. Stems erect, elongated, stout but weak, irregularly and obtusely angled and costate. Leaves sessile, those of the pair somewhat unequal, 7 to 15 cm. long, 2 to 4 cm. broad, lanceolate with narrowed base and regularly long, acuminate and acute summit, thickish, dark dull green, serrulate with very acute teeth and sinuses, strongly 3-nerved, the nerves prominent beneath, the midrib broad and flat, the nerves connected by very many crooked nearly divaricate secondaries, and similar ones on the outer sides of the lateral nerves. Cymes slenderly peduncled, the peduncles very unequal, loosely and flexuously branched, the branches loosely flowered, the branchlets thick and fleshy, without bractlets, the flowers minute.

Specimen unique. Collected by Miguel Bang, in Bolivia, without number, locality or date.

Species near *P. anomala* Wedd.

Sahagunia colombiana.

Glabrous. Branchlets rather slender, straight, purple, terete. Petioles 10 to 15 mm. long, rather stout, purple, grooved above, the groove continued into the midrib. Blades 8 to 14 cm. long, 3 to 5 cm. broad, oblong or obovate, with narrowed base and the summit very abruptly contracted into an acumination 12 to 15 mm. long, 4 to 8 mm. broad, lance-linear and obtuse, the margin obscurely and irregularly sinuate; thickish, dull-green, the venation lightly prominent above,

sharply so beneath, the secondaries 10 or 12 on a side, rather crooked, widely spreading and the ends up-curved and looped together near the margin; another very slender strongly sinuate line very close to the edge, the remaining venation finely and strongly reticulate. Staminate spikes mostly 5, shortly and stoutly peduncled or sessile in the axils, 3 to 5 cm. long, 4 or 5 mm. thick, densely flowered. Rachis thick, its bractlets minute, ciliate. Filaments about 1 mm. long, thick, the anther half as long, cordate or reniform.

"A large tree in a damp forest, Don Amo Road, about 500 feet, January 13." (Herbert H. Smith, Colombia, No. 424.)

Myriocarpa magnifica.

Stems and petioles scabrous, the lower leaf-surfaces bright green and minutely scabrellate, the upper grayish and densely beset with linear-oblong cystoliths arranged more or less in radiate groups, and minute hairs. Petioles to 4 cm. long, stout, gray, striate. Blades 15 to 25 cm. long and 7 to 12 cm. wide (or very much larger ?) ovate or somewhat rhomboidal, with obtuse to rounded base, and acuminate and acute summit, very thin, crenate-dentate, the sinuses obtusish, the teeth mostly with a minute apiculation. Venation broad, not prominent, the secondaries about 8 or 9 on a side, strongly falcate, thin, ascending, connected by numerous straight or regularly curved tertiaries. Racemes to 3 dm. long, very slender, paniculate, the panicle mostly peduncled, the peduncle short, filiform, bearing occasional long, lance-ovate, green bracts.

Staminate flowers 1.5 mm. broad, when expanded, the sepals 4, hyaline, very broad, sub-equal, the 4 stamens subsessile, very broad.

Pistillate flowers from very minute bracts, the pistil very villous, short stipitate, ovoid, acuminate, the style concealed by the dense hairs.

"A tree-like shrub to 6 or 8 feet. Local in damp forest near streams, 1,000 to 2,000 feet, December to January. Collected near Cacagualita, 1,500 feet, December 23." (Herbert H. Smith, Colombia, No. 1422.)

Another specimen, from the Menca Road, 1,000 feet, consists of one leaf, which may be this species. It is 4 dm. long and 2.5 dm. broad, on a petiole 2 dm. long.

Myriocarpa obscura.

Pistillate Plant.—Younger portions minutely soft-gray-tomentellate, the lower leaf surfaces obscurely sparse-pilose, the upper clothed with cystoliths. Stems stout, red. Petioles to 2 cm. long, stoutish, dilated at the base. Blades 6 to 15 cm.

long, 3 to 6 cm. broad, obovate, with rounded or sub-truncate base and abruptly short-acuminate and acute summit, thickish, serrate-dentate, with sinuate sinuses and very small obtuse or acutish teeth, very deep-green, somewhat 3-nerved, the secondaries about 6 or 7 on a side, strongly ascending, the venation strongly reticulate, the branches of the lateral nerves forming a looped line near the margin. Spikes mostly 5 to 8 cm. long, some twice that length. Bracts of the flowers 2, conspicuous, ovate, acuminate, erect-spreading. Pistil sub-sessile, ovoid, acuminate, coarsely few-setose, the style stout, angled, purple, the stigmas large, short-pilose, light-brown.

"Polo-Polo, near Coroico, Bolivia, 1,100 M. altitude, November, 1912." (Otto Buchtien, No. 3757.)

Roupala discolor.

Inflorescence tomentellate, otherwise glabrous. Branchlets stout, flexuous, dark purple. Petioles 3 or 4 cm. long, slender, channeled above, ferruginous in the groove and in the axil, the blades 6 to 12 cm. long, 4 to 8 cm. broad, ovate, the base rounded or truncate, some very slightly produced into the petiole, the summit abruptly contracted into a long, narrow, very acute acumination, the margin obsoletely serrate, some of the small erect teeth acute; deep green above, whitish underneath, the venation slender, lightly prominent underneath, the principal secondaries about 7 on each side, lightly ascending. Racemes longer than their leaves, short-peduncled, the rachis gray-tomentellate, rather densely flowered, the flowers mostly in twos, their pedicels stout, about a third the length of the flowers. Buds just previous to expanding about 8 mm. long, the middle portion about half as thick as the basal and about a third as thick as the oblong head. Lobe of perigone slightly broader toward the obtuse summit, the stamen attached about two-t .irds of the way from base to summit and shorter than the latter, its filament about a fourth of its length, the terminal appendage very slight. Ligules of the disk 4, white, thin, about a third the length of the ovary, broader than long, narrowed at the base. Ovary nearly half the length of the pedicel, pilose. Style contracted in the middle third.

"A forest tree, valley near Jiracasaca, January 13, the flowers white, fragrant." (Herbert H. Smith, Colombia, No. 901.)

Struthanthus divariacatus.

Glabrous, the branchlets elongated, slender, terete, the internodes about 6 cm. long. Petioles 1 to 1.5 cm. long, channelled above and with a cartilaginous margin. Blades 4 to 7 cm. long, 1 to 3 cm. broad, lance-ovate, biacuminate and acutish, thin, bright-green, the secondaries very slender and the vena-

tion inconspicuous. Racemes shorter than their leaves, their peduncles slender, about as long as the petioles, the flower branches loosely disposed, sub-opposite, divaricately spreading, the 3-flowered branches about as long as the flowers, slender, sharply angled. Perigone divided to the base, the lower portion of the lobes erect, a little shorter than the reflexed, linear greenish-yellow upper portion. Stamens shorter than perigone, the filaments a little shorter than the oval anther. Style slender, the stigma capitate.

Cotaña, Bolivia, 2450 M. (Buchtien, No. 3158.)

Aetanthus ovalis.

Glabrous, the branchlets short and stout, terete, greenish, strongly wrinkled in drying. Leaves 5 to 8 cm. long, 2 to 5 cm. broad, oval, abruptly contracted into a short petiole-like base, rounded at the summit, entire, thick, revolute, roughened on both surfaces with fine papilla-like wrinkles, sub-5-nerved by two pairs of strong secondaries originating near the base of the midrib. Peduncles clustered at the ends of the branchlets, the bracts very short, broader than long, blunt. Flowers (young and unopened), 7 cm. long, straight, very slender, the middle third dilated to about twice the thickness of the other portion. Calyx-tube 2 or 3 mm. long and nearly as broad, purple, the whitish margin truncate, with very small acute teeth. Stamens attached at the base of the upper third of the corolla, where the latter is pilose. Filaments very short, the anthers extending to the summit of the corolla, slightly sagittate at the base, attenuate at the summit.

"In damp forest, Sierra del Libano, 6,000 feet May 18. On a high tree, the flowers bright-red. Grows to 5 feet long, with pendent branches." (Herbert H. Smith, Colombia, No. 1494.)

Dendrophthora stricta.

Glabrous. Stems much-branched, the ultimate branches to 8 cm. long, very slender, the internodes 2 to 2.5 cm. long, more or less quadrilateral and with a sharp nerve between the angles. Leaves 1 to 2.5 cm. long, 1 to 2 mm. wide, linear, obtuse or acutish, entire, thick, the midrib prominent beneath. Spikes to 2 cm. long, including the sharply angled peduncle, which is a third of the length, very slender, many flowered, the pair of bracts at the base of the inflorescence 1.5 mm. broad. Flower 2 mm. long and nearly as broad, lightly immersed, the petals ovate, acute, not keeled, thickish, the calyx annular, narrow, obscurely lobed. Rudimentary stamens present on some petals. Stigma very small. Berry 5 mm. broad, 3 mm. high, light-brown.

Staminate flower not seen.

"From the Harqueta Mountain thicket, on a ridge, 7,500 feet altitude, on a tree, December 25." (Herbert H. Smith, Colombia, No. 1289.) Also "On the top of the San Lorenzo Ridge, 7,500 feet, on trees, March 10."

Dendrophthora striata.

Glabrous. Stems much-branched, the branches slender, to 2 dm. long, strict, terete, densely leafy. Leaves 1 to 2.5 cm. long, 3 to 5 mm. wide, oblanceolate with acuminate base and obtuse summit, very thick, the lower portion bluntly keeled on the lower surface, deep-green, much and finely wrinkled in drying, obscurely 3-nerved. Peduncles 5 or 6 mm. long, erect, 4-angled, thick and fleshy, much wrinkled, mostly bracted at the base and bearing a pair of connate bractlets above the middle. Spike mostly a little longer than its peduncle, stipitate in the bractlets, thick-clavate or sub-capitate, sometimes 5 or 6 mm. broad, rather few-flowered. Flowers deeply immersed, 4-merous. Calyx rotate, broad, entire, thick and fleshy. Petals scarcely 1 mm. long, broadly triangular, thick and fleshy. Rudimentary stamens sometimes present. Style nearly equaling the petals, thick. Berry depressed globose. Seeds 1.5 mm. long, broadly oval, strongly compressed, brown, smooth and shining.

Staminate flowers not seen.

Unduavi, Bolivia, 3,300 M. altitude, November 1910. (Otto Buchtien, No. 2818.) No. 2819, from the same locality, is a young state of the same.

Agonandra granatensis.

Glabrous, except for a fine tomentum on the inflorescence. Branchlets ascending, terete, green, leafy. Petioles about 5 mm. long, broad, channelled, the blades 3 to 5 cm. long, 1.5 to 2 cm. broad, ovate, with acute or obtuse base and short-acuminate and acute summit, entire, bright-green, thick, the venation obscure. Racemes axillary, simple, solitary or two or three together, 3 to 6 cm. long, on short, slender peduncles, the flowers solitary or geminate on spreading pedicels of about their own length. Flowers about 2.5 mm. long, exclusive of the stamens, turbinate-campanulate before the spreading of the petals. Stamens twice the length of the petals, the anthers small, as broad as long. Staminodia a third the length of the stamens, short-stipitate, thick and fleshy, 3-dentate, the middle tooth longer. Pistillate flowers not seen.

"A tree to 35 feet high, on damp forest trail from Don Amo to the Sierra Nevada, 2000 feet, March 12." (Herbert Smith, Colombia, No. 1950.)

"A tree 15 feet high, in dry forest, Bonda, 150 feet, April 9" (No. 1771).

Apodanthes tribracteata.

Plant in fruit, glabrous, the fruits closely sessile in the crevices of the bark of a tree-trunk. Bracts three, slightly unequal, coherent at the base, about 5 mm. long, 4 mm. wide, ovate with rounded summit, thick and fleshy, shining, especially on the inner surface, slightly concave, closely enclosing the base of the calyx, which is adnate to about the middle of the fruit, nearly 1 cm. long, 4-lobed about two-thirds of the way, the lobes broadly ovate, obtuse, the upper half free, the sinuses closed or narrow for most of their length. Fruit 13 mm. long and 10 mm. wide, globose-ovoid. Stigma sessile, unless its lower two-thirds be regarded as a style, two or three mm. long, and of rather greater breadth, ovoid-conical, minutely puberulent or granular, the summit plane. Placentae four, laterally expanded to line the cavity, lontitudinally plicate, perhaps as the result of drying. Seeds minute, very numerous.

"Near Inglis—Inglis, Bolivia, 550 feet altitude, on a tree trunk, the fruit yellowish-green, August 8, 1902." (R. S. Williams, No. 1580.)

Ruprechtia tenuiflora Benth (?)

Santa Catalina, lower Orinoco, Venezuela (Rusby and Squires, No. 417).

Dr. Prain, Director of the Kew Botanical Garden, to whom I referred this plant, states that it is closely allied to the species here named. Since my specimen is only a fragment of the pistillate plant, in flower, and I have no specimen of *R. tenuiflora* for comparison, I must thus dispose of it for the present.

Allionia craterimorpha.

Softly pilose with spreading white hairs. Stems diffuse, the branches very slender, the internodes 5 to 7 cm. long, strongly angled and sulcate. Leaves of the pair unequal, the slender petioles very unequal, up to 3 cm. long, the blades 3 to 6 cm. long, 2 to 4 cm. broad, inequilaterally ovate, the truncate base oblique, the summit acuminate and acute; entire, thin, the principal veins broad and flat. Inflorescence long and slenderly peduncled, loosely branched. Involucres crateriform or nearly hemispherical, about 1 cm. broad, lobed about half-way, the broadly ovate obtusish lobes sub-equal, strongly purple-veined. Flowers 3, sessile, the calyx-tube scarcely 2 mm. long, obovoid, 5-ribbed, pilose, the limb urceolate or campanulate with contracted margin, about twice as wide as

the tube. Stamens 3, their tube crateriform, 2 mm. broad. Anthers as broad as long. Fruit (mature ?) 4 mm. long and nearly as broad, obovoid, slightly compressed, the base constricted, the summit bearing a black tubercle about one-fourth the width of the fruit and minutely muricate.

"Stems becoming diffuse, to 2 feet long. Local in forest and clearings, in damp ground below 1000 feet. Collected near Bonda, 150 feet, October 15." (Herbert H. Smith, Colombia, No. 569.)

Berberis ovalifolia.

Glabrous, the branches very stout, terete, the branchlets extremely short and stout, with densely crowded leaves. Spines pinately branched, stout, pungent, terete, the basal branches about as long as the central spine, some of them bearing a pair of rudimentary branches. Stipules densely imbricated upon the branchlets, blackish, about 4 mm. long and broader, ovate, thick and rigid, keeled, terminating in a small acute mucro. Petioles about 1 cm. long, strongly channelled above, dilated at the base. Blades 3 to 6 cm. long, 2 to 3 cm. broad, oval with the base abruptly and slightly produced and the summit rounded, thick and coriaceous, densely dentate with short, salient pungent teeth and rounded sinuses, somewhat glaucous underneath when young. Venation, including the secondaries, finely and very strongly anastomosing, very prominent on both surfaces. Racemes long and slenderly peduncled, wholly or their upper portions drooping, the bracts about 6 mm. long, falcate, alternate. Pedicels slender, about 2 cm. long, nerved, especially at the enlarged summit. Outer sepals successively shorter, more or less purple, some of the petals nearly 1 cm. long, broadly oval with rounded summit, the basal glands large and extended into a pair of lateral nerves. Stamens shorter than the petals, the broad anther shorter than the stout filament, which is enlarged at the base, the terminal appendage of the connective truncate, twice as broad as its length. Ovary on a short thick stipe, oval, the stigma discoid, concave, more than half as wide as the ovary.

"A shrub, 1½ meters high, at Unduavi, North Yungas, 3300 M., November, 1910. (Buchtien, No. 2844.)

Berberis densifolia.

Glabrous, the branches stout, terete, the branchlets short, very thick and stout, and very leafy, the thorns few and small in my specimen. Stipules densely imbricated on the branchlets, blackish, broadly ovate, about 3 mm. long, exclusive of the terminal, mostly recurved seta which is nearly as long as the body, rigid, the strong midrib more or less 3-nerved. Leaves

5 to 10 cm. long, 2 to 4 cm. broad, oblong-oblanceolate, with the base somewhat abruptly contracted into a short margined petiole, pungently mucronate at the otherwise blunt summit, coriaceous, the margin varying from sinuate or sub-entire to serrate with setose and pungent erect or incurved teeth, the coarsely and strongly anastomosing venation very prominent on both surfaces, the principal secondaries forking beyond the middle, their branches then again connecting with one another and with those of the adjacent secondaries. Racemes long and slenderly peduncled, elongated and loosely flowered, the bracts subulate and pungent, erect, about 3 mm. long. Pedicels about 1 cm. long, slender, terete, lightly thickened toward the summit. Sepals and petals similar, about 6 mm. long, ovate, obtuse, thickish. Glands of the petals small and close together, extended into 2 slender nerves. Stamens shorter than the petals, the filaments shorter than the anthers, very stout, oblong in form. Connective of anther prolonged into a short, thick, blunt appendage. Pistil about as long as the stamens, the ovary oval, its width two-thirds of its length, the stigma discoid, nearly as wide as the ovary, obscurely lobed.

Unduavi, Bolivia, 10,000 feet October 1885 (Rusby No. 508), and Buchtien (No. 2845), November 1910.

Rusby's specimens (the type) were distributed somewhat doubtfully as *B. quindiuensis* H. B. K., but the additional collections of Buchtien show the species to be distinct.

Cissampelos tomentocarpa.

Lower leaf-surfaces, etc., very finely cinereous, the inflorescence and fruits gray-tomentellate. Stems twining, woody, rather stout, terete, finely striate. Petioles 6 to 10 cm. long, very slender, terete, striate, the blades thickish, 10 to 18 cm. long, 5 to 10 cm. broad, ovate with truncate base and with an abrupt, short, acute acumination at the summit, entire, subglabrous above, where the venation is more or less impressed, cinereous underneath, where the venation is sharply prominent and coarsely reticulate, 3-ribbed, the laterals starting from the base of the midrib, perhaps with another faint pair near the margin, all connected by straitish, divaricate secondaries. Peduncles short, stout, several-fruited, the fruits very shortly and stoutly pedicelled. Fruit inequilateral, compressed, 2.5 cm. long, two-thirds or three-fourths as broad, the margin thickened, twice as wide on one side as on the other, the thick seed occupying about half of the breadth.

San Buena Ventura, Bolivia, 1400 feet., November 22, 1901 (R. S. Williams, No. 616).

No. 562, from Tumapasa, 1800 feet, January 16, 1902, "a low vine" is, I think, the same. It has narrower leaves, only

about half as large and with rounded base, and the fruits are only about half as large, with narrower margin. No. 616 is the type.

Hyperbaena trinervis.

Glabrous except for the minutely puberulent inflorescence. Branches stout, terete, the internodes elongated. Petioles 2 to 3 cm. long, slender, nerved, enlarged above, where they bear a pair of large glands. Blades 8 to 12 cm. long, 3 to 5 cm. broad, lance-oblong, mostly slightly inequilateral, rounded at the base, abruptly short-acuminate and obtuse at the summit, entire, thick and coriaceous, somewhat lucid, the midrib impressed above, strongly prominent underneath, as are the secondaries, the venation slightly prominent on both surfaces. Basal pair of secondaries forming sub-marginal nerves extending about half the length of the leaf, the other secondaries 2 or 3 on each side, the secondaries and midrib connected by numerous straightish tertiaries. Racemes paniculately disposed, mostly 3 to 6 cm. long, slender, the very small flowers crowded in short racemes which are loosely distributed along the rachis. Bracts very small, subulate, the flowers very shortly and stoutly pedicelled. Flowers not exceeding 1 mm. in breadth. Outer sepals minute, apparently 6, the three outer smaller. Inner sepals obovate, five times the length of the outer. Petals 6, spatulate with rounded summits, minute.

"San Antonio, Mapiri, Bolivia, 870 M. December, 1907. (Buchtien, No. 1935.)

Duguetia pauciflora.

Glabrous, except for the tomentose calyx. Branchlets slender, terete. Petioles very short, margined, the blades 15 to 25 cm. long, 5 to 8 cm. broad, oblong or oval with rounded or blunt base and abruptly very short acuminate summit, entire, thin, slightly shining above, where the midrib is narrowly grooved, the very slender venation prominent underneath, the principal secondaries about 12 on each side, widely spreading, lightly falcate and lightly anastomosing near the margin. Flowers several, borne distantly in a slender terminal raceme. Pedicels very short and stout, subtended by a small, very thick triangular-ovate bract. Flowers about 12 mm. long, 15 mm. broad. Sepals 3, two-thirds the length of the petals, broadly ovate, erect, thick, tomentose. Petals 6, sub-equal, pubescent without, the inner a little longer and narrower, their summits inflexed. Stamens very short, the anthers margined, broadened upward and tipped by a short, broad, lighter colored, truncate extension of the connective. Carpels about 15, seen only in a very young state, sessile, pubescent, appearing as though they

later would become coherent at the base, terminating in the conical-acuminate style. Ovule one, erect from the base.

Santa Catalina, Venezuela, May, 1896. (Rusby and Squires, No. 158.)

Duguetia rostrata.

Glabrate, the branchlets purple, terete, the leaves crowded. Petioles very short, stout, blackish, when young puberulent. Blades 1 to 2 dm. long, 4 to 6 cm. broad, oblong-oblanceolate with obtuse or acutish base and abruptly contracted at the summit into a narrow, attenuate acumination sometimes 3 cm. long; entire, thin, the midrib impressed above, prominent beneath, like the slender, coarsely reticulate venation. Principal secondaries about 12 on a side, nearly at right angles with the midrib, lightly falcate and interarching near the margin. Flower solitary, sub-terminal, shortly and stoutly peduncled, 2.5 cm. long. Sepals tomentose, 7 or 8 mm. long, much broader, ovate, obtuse, thickish, erect. Petals purple, sub-equal. Stamens and pistils not seen. Fruit sub-globose, the carpels sessile and coherent below the middle.

Santa Catalina, Venezuela, May, 1896.

(Rusby & Squires, No. 157.)

Trigynaeia anastomosans.

Glabrate, the branchlets stout, flexuous, terete, leafy. Petioles very short and stout, margined, minutely scurfy, the blades 1 to 2.5 dm. long, 3 to 7 cm. broad, oblong or oblanceolate with acute base and the summit abruptly produced into an oblique obtuse point about 2 cm. long; entire, bright-green, thin, the slender, coarsely reticulate venation slightly prominent above, sharply so underneath, the principal secondaries about 12 on each side, strongly anastomosing by loops a short distance from the margin, which is thinly revolute. Flowers solitary, on peduncles 4 or 5 cm. long, terete, and thickened upward. Sepals 3, erect or incurved, 6 mm. long, and broader, acute, fleshy. Petals 6, a little shorter than the sepals, similar to the sepals, sub-equal, erect, the margin ciliate. Perigone completely deciduous. Anthers very numerous, massed but distinct, 1 mm. long, the filament dilated upward, the summit as wide as the anther, and about as long as the anther, which is truncate. Pistils 4 mm. long, the ovary turgid, falcate, lanceolate, the stigma terminal, purple, short. Ovules several, in one series.

Sacupana, Venezuela, April 1896 (Rusby and Squires, No. 155.)

Oxandra ovata.

(Fruiting specimen.)

Glabrous, the branches stout, the branchlets divaricate or widely spreading. Leaves sub-sessile, 5 to 10 cm. long, 2.5

to 4.5 cm. broad, ovate with the base produced into a very short petiole, and an abruptly acuminate and obtusish summit, entire, thick, slightly lustrous above, the slender venation inconspicuous on both surfaces, the secondaries about 10 on each side, quickly dividing and losing themselves in a loose reticulation. Fruits sessile on the paniculate branches, 10 to 14 mm. long, nearly ellipsoidal, black, smooth.

"Lower Rio Cocos, 2500 feet alt., March 25, 1902" (R. S. Williams, Bolivia, No. 217).

Nectandra amplifolia.

Inflorescence grayish-downy, the hairs extremely minute. Branchlets flexuous, rather slender, coarsely angled, purplish. Petioles 10 to 15 mm. long, purple, very stout, shallowly channelled, the groove extending into the midrib. Blades 12 to 25 cm. long, 5 to 10 cm. broad, oval or ovate with very abruptly and shortly produced acute base and summit, thickish, yellowish-green, the venation impressed above, sharply prominent beneath, the secondaries about 10 on a side, spreading and lightly curved, the ends looped together at some distance from the margin, connected by few very slender crooked tertiaries. Panicles in the upper axils, and terminal, 7 to 10 cm. long, including the peduncle, which is a little more than half the length, slender and strongly nerved or angled, the flowering portion short and broad, the bracts and bractlets caducous. Pedicels shorter than the flowers, very stout, angled. Sepals 3 mm. long, broadly oval or sub-rotund, thick, gray externally, purple within, obscurely 3-nerved. Petals similar, but a little narrower. Outer anthers sessile, broadly ovate, very thick, puberulent, the thecæ small, near the base. Glands of the third set of stamens not apparent. Staminodia very small, linear or minutely capitate. Style stout, short, 3-lobed, the lobes recurved.

"A tree, to 50 feet or more, in mountain forest near Las Partidas, 3,700 feet, March 17." (Herbert H. Smith, Colombia, No. 1763.)

Ocotea flavescens.

Pistillate Plant.—Youngest portions sparsely and very minutely puberulent. Branchlets stoutish, purple, more or less angled toward the summit, leafy. Petioles 1 to 1.5 cm. long, rather stout, purple, grooved above, the groove extending into the midrib. Blades 6 to 12 cm. long, 2 to 4 cm. wide, lanceolate with rounded or blunt base and short-acuminate and obtusish summit, thin but rigid, the older ones drying yellowish, the younger glaucous on the lower surface. Venation prominent beneath and slightly so above, except the midrib and a pair of nerves which originate above the base, these being

lightly impressed. Principal secondaries only three or four on a side, with faint intermediate ones, strongly falcate-ascending and crooked, connecting near the margin, some of them with glands in their axils. Finer venation finely reticulate. Panicle in the upper axils, about as long as their leaves, the slender peduncles about half the total length, the inflorescence lax and open. Perigone 2.5 mm. long, the sepals ovate and obtuse, with dark middle line, thick and rigid. Petals a little longer and much broader, thinner. Stamens varying greatly in development in different flowers, some very rudimentary, others nearly perfect. Outer set very small and rudimentary, the second oblong with base slightly narrowed, the third elongated, with narrow base, the glands flattened and large, their combined breadth equal to the length of the stamen. Staminodia minute. Ovary ovoid-globoidal, the style very short, stout, entire.

"A tree of 50 or 60 feet, pretty common in mountain forest near Valparaiso, 4,000 to 5,500 feet, February 25." (Herbert H. Smith, No. 1762.)

Ocotea flexuosa.

Staminate Plant.—Glabrous. Branchlets stout, flexuous, terete, deep-purple. Petioles about 1 cm. long, very stout, deep-purple. Blades 10 to 20 cm. long, 4 to 8 cm. broad, ovate with acutish base and abruptly short-pointed acutish summit, very thick, very dark-reddish green and shining above, the slender venation prominent beneath, the principal secondaries 10 or 12 on a side, falcate-ascending, crooked and branching, connecting far from the margin, mostly with axillary glands, the remaining slender venation coarsely reticulate. Panicle terminal, large and broad, compound, branching at or near the base, recurved, lax and open, the flowers very shortly and stoutly pedicelled and bracteolate with thick, short, ovate, acute bractlets. Sepals 2.5 or 3 mm. long, ovate, mostly acutish, very thick, somewhat keeled. Outer stamens very short and broad, attached to the base of the sepals. The second set somewhat elongated, the third set with a pair of black, sessile, connate glands at the base. Staminodia very small, acute. Ovary very rudimentary.

"A forest-tree in mountains above Don Amo estate, about 2,500 feet, January 14." (Herbert H. Smith, Colombia, No. 1764.)

Ocotea alloiophylla.

Shortly tomentose and somewhat ferruginous. Branchlets short, stout, flexuous. Petioles 1.5 to 2 cm. long, very broad and stout, broadly channelled. Blades of the season 12 to 15 cm. long, 3 to 7 cm. broad, obovate with acutish base and

shortly and broadly mucronate summit, entire, ciliate, thin, drying deep-purple or blackish, the upper surface sparsely short-pilose, except the veins, which are tomentose, the lower surface yellowish-tomentose, the venation not prominent, the secondaries about 10 on a side, strongly ascending, little curved. Leaves of the preceding season (but one seen) nearly 2.5 dm. long, of similar form, thick, glabrate above, with the midrib and secondaries impressed, and more or less pilose, the fine venation prominent, very finely reticulate so as to make the surface pitted or tesselate, drying brownish. Panicles lax, with few branches, on slender peduncles longer than themselves. Bractlets minute, the flowers sub-sessile.

Staminate flower.—Perigone segments 2.5 mm. long, ovate, obtuse, thick and rigid. Outer and middle stamens nearly as long as the segments, adnate to their base, the free portion of the filament very short. Inner set longer, the pair of large glands at the summit of the filament twice as wide and about as long as the anther. Sterile set two-thirds the length of the third set, ovate, acuminate and acute. Pistil rudimentary, as long as the staminodia, acute, entire.

Pistillate flowers not seen.

"A large tree in mountain forest 5 miles southeast of Don Amo, 2,500 feet altitude, March 7." (Herbert H. Smith, Colombia, No. 2104.)

Sparattanthelium sprucei.

Coarsely hairy with rigid, divaricate, ferruginous hairs, the branches stoutish, terete, the internodes about 2 cm. long. Petioles about 12 mm. long, densely hairy, like the stem and principal veins, subterete, the blades 8 to 12 cm. long, 2.5 to 3.5 cm. wide, oblong, with rounded base and abruptly acuminate and acute summit, the acumination nearly a fifth of the total length; entire, thin, drying brownish, sub-three-nerved, the slender venation lightly and sharply prominent beneath, the principal secondaries about 5 on each side, sub-erect, with many very small obscure veins originating at right angles from the midrib. Compound corymbs in the upper axils, their slender peduncles mostly shorter than their leaves, slenderly branched, the flowers shortly and stoutly pedicelled or subsessile, densely aggregated. Buds globose, or slightly prolate, about 1 mm. long. Calyx-tube very short. Sepals 5, the outer smaller, oval, obtuse, thickish; anthers 5, slightly unequal, sub-sessile, oval. Pistil not seen. Fruit 15 mm. long, 7 mm. thick, lanceolate, acuminate and acute, 6 or 7 sulcate, minutely papillose.

"Near Tarapoto, eastern Peru, 1855–6." (Spruce, No. 4222, a.)

Lepidium angustifolium.

Gray-green, with closely appressed fine hairs. Stems simple, 1 to 2 dm. high, ascending from an annual root, very slender, leafy almost to the flowering portion. Leaves 1.5 to 3 cm. long, 1.5 to 3 mm. wide, linear-oblanceolate, obtuse, gradually narrowed into a petiole-like base, entire, thin, the venation not perceptible. Inflorescence elongated, loose, without bracts. Pedicels in flower 5 or 6 mm. long, in fruit, but little longer. Sepals 1.5 mm. long and a little more than half as wide, oval, obtuse, thickish, green with purplish tips. Petals white and purplish, 4 mm. long, 2.5 mm. wide, the claw a fourth of the length, the limb oval-elliptical. Stamens more than half the length of the petals, the filaments rather stout. Pistil half the length of the petals, the ovary oval, a little longer than the stout style, the stigma large, capitate. Capsule 3 mm. long, including the very short persistent style, two-thirds as wide, oval and nearly elliptical, green with purple margin.

"La Paz, Bolivia, by side of river, along road to Obrajes, 3,500 meters, May." (Otto Buchtien, No. 2848.)

Radicula scabra.

Gray-green and rough-hairy throughout. Stems to 8 or 10 cm. long, prostrate or ascending, densely massed, stoutish but weak, somewhat branching. Radical leaves in a dense rosette, 4 to 7 cm. long, 6 to 10 mm. wide, oblanceolate in general outline, gradually narrowed into a margined petiole of variable length, pinnatifid, the divisions successively smaller and more remote toward the base, the larger ones 4 or 5 mm. long and nearly as wide, ovate or obovate, obtuse or acutish, entire or some obscurely crenate-dentate, the base broad, thick. Flowers in a terminal, leafy-bracted raceme, the pedicels very short. Calyx 2 mm. long, ovate, obtuse, thin, concave. Petals a little longer than the sepals, spatulate, unguiculate. Stamens of same length, the filaments thick, the anthers very small, oblong, versatile. Ovary longer than perigone, pilose, oval, the style very short and thick, the stigma capitate. Pod 7 mm. long, 2.5 mm. wide, oblong, lightly compressed, straight or slightly curved, the sepals persistent, tipped by the short style, rough-hairy. Seeds on filiform funicles, compressed, sub-rotund.

La Paz, Bolivia, 4,100 meters altitude, April 1910. (Otto Buchtien, No. 587). No. 2846, La Paz, 4,000 meters altitude, March 1910, is the same.

"*Mathewsia diffusa* Rusby", Bull. N. Y. Bot. Gard. 4:322 (1907), proves to be an extremely large and robust form of a *Radicula*, with woody base, perhaps *R. nana* (Wedel.) *n. comb.*

Morisonia elliptica.

Inflorescence, branchlets, etc., more or less scurfy. Branchlets stout, flexuous. Petioles 1 or 2 cm. long, stout, the blades 8 to 15 cm. long, 3 to 6 cm. broad, elliptical with rounded or slightly cordate base and abruptly very short and acutely pointed summit, entire, thick and coriaceous, very finely puberulent along the veins, the midrib sharply prominent on both surfaces, the secondaries also prominent beneath, the slender and somewhat crooked secondaries 5 or 6 on each side. Peduncles developed laterally on the branchlets, stout, short, the few loosely racemed flowers on stout, very short pedicels. Calyx-tube campanulate, the ligulate appendages short, thick, ovate and obtuse. Sepals 8 or 9 mm. long, broadly ovate with rounded summit, thick, very scurfy. Petals 1.5 cm. long, elliptical oval with a short claw, pilose within, slightly scurfy without. Stamens numerous, 8 mm. long and about equalling the pistil, the stout filaments pilose and gradually broadening upward into the anthers, which bear an ovate terminal appendage. Stipe nearly as long as the ovary, very thick. Ovary nearly as broad as long, broadly 10-ribbed, the sessile discoid stigma nearly as wide as the ovary, very thick. "Fruit globose, brown, roughish, 1½ inches in diameter" (Smith).

"A spreading tree, to 20 feet. Rare in dry forest near the coast and for several miles inland. Flowers and fruit on the same tree. Petals whitish or with a greenish-yellow tinge. Collected near Playa Brava, April 10." (Herbert H. Smith, Colombia, No. 2098). The specimen is accompanied by a single detached leaf that is broadly ovate, and highly inequilateral, but otherwise like the others. It seems hardly possible that it belongs to the species and is more probably the leaf of a *Capparis*.

Elaeodendron macrophyllum.

Glabrous, the branchlets slender, terete, purplish. Petioles 6 mm. long, stout, the blades 10 to 17 cm. long, 3 to 5 cm. broad, oblong-lanceolate with acutish base and acuminate, obtusish summit, entire, thick, slightly reticulate, the venation prominent beneath, lightly impressed above, the secondaries about 7 on each side, strongly ascending, lightly curved and obscurely connecting close to the margin, connected by the very slender, obscure tertiaries. Only young fruit seen, apparently solitary on short, very stout peduncles, which thicken upward. Fruit oval with rounded summit, gray-brown, roughish.

"Falls of Madeira, Brazil, October 1886" (H. H. Rusby, No. 1248).

Specimen near Spruce's No. 2097.

Brunellia boliviana.

Brunellia boliviana Britton ex Rusby, Mem. Torr. Bot. Club, 3 (1893), 13 is a homonym for *B. Oliverii* Britton, Bull. Torr. Bot. Club 16 (1889): 160. At the time that I wrote the description for the new species, I inadvertently took up the wrong herbarium sheet, namely Mr. Bangs No. 664, instead of Rusby's 2577, which has thus gone undescribed. I therefore now name and describe the latter as follows.

Brunellia Brittonii.

Veins on the lower leaf-surfaces, calyx, etc. minutely puberulent; branchlets elongated, very stout, coarsely angled, purplish, containing a large pith; petioles 1.5 dm. long, very stout, costate; rachis in one of the two leaves seen 1.5, in the other 2.5 dm. long; leaflets about 6 pairs, their petiolules 2 or 3 mm. long and about as broad, the blades 1 to 1.5 dm. long, 4.5 to 6 cm. broad, oblong, inaequilateral and somewhat falcate, lightly cordate at the base, coarsely sinuate-dentate, very thick, very pale and slightly shining above, with the midrib slightly impressed, yellowish underneath with the midrib and 18 to 20 pairs of crooked, lightly ascending secondaries terete and very prominent, the prominent venation finely reticulate; peduncles 7 or 8 cm. long, very stout and coarsely and sharply angled; panicle about 2 dm. long, nearly as wide, very loose and open, the stout peduncle sharply 4-angled. Flowers sessile, only the staminate seen. Sepals 6 mm. long and 3 wide, ovate, obtuse, thick and fleshy. Filaments very slender, much exceeding the sepals, the anthers large, stout, obtuse, versatile.

Unduavi, Bolivia, 8,000 feet, October 1885 (H. H. Rusby, No. 2577).

Species very near *B. boliviana*, Britton, and distributed under that name.

Weinmannia lyrata.

Branchlets, etc., tomentose, the branchlets numerous, short, angled, swollen at the nodes, the leaves crowded. Stipules caducous, not seen. Leaves 3 or 4 cm. long, including the short, stout petiole, ovate in general outline, of 3 to 7 leaflets, the internodes of the rachis broadly winged, the wing narrowed downward and with an angle on each side near the summit. Lower leaflets smaller, 6 to 9 mm. long, oval, obtuse, obtusely serrate, the terminal 1.5 to 2.5 cm. long, ovate, serrate like the lateral and somewhat incisely lobed or pinnatifid. Leaves thick, sub-glabrous above, coarsely pilose beneath, the venation impressed above, prominent beneath. Racemes crowded at the ends of the branchlets, 2 to 4 cm. long, slender, loosely flowered, the branchlets 1 to 3 flowered, the bracts minute, the

pedicels slender, longer or much shorter than the calyx, which is 1 to 1.5 mm. long and broad, the base sub-truncate, the sepals ovate and acute. Petals a little longer than the sepals. Filaments short, stout. Ovary ovoid, nearly as long as the sepals, tapering into a short stout style, the stigmas large.

"A shrub of 2 M., at Unduavi, Bolivia, 3,400 M. altitude, November 1910 (Otto Buchtien, No. 2854).

Licania venosa.

Finely gray-tomentellate, the branchlets slender, erect or strongly ascending, coarsely angled or sulcate, leafy. Petioles 1.5 to 2 cm. long, stout, strongly channelled above, the margins bearing several rows of glands so as to appear crenated. Blades 10 to 13 cm. long, 5 to 7 cm. broad, oval or obovate with blunt base and stoutly mucronate and acute summit, thick and coriaceous, entire, white or yellowish tomentellate beneath, with the purple venation strongly prominent, above purple and sparsely and finely puberulent, the midrib impressed, the principal secondaries about 8 or 10 on each side, strongly ascending, disappearing in the margin or the upper lightly connecting, connected by very numerous straightish tertiaries, the ultimate venation finely reticulate. Panicles terminal and axillary, the lower longer than their leaves, strongly peduncled, the peduncles coarsely angled, loosely and openly branched. Flowers crowded at the ends of the branchlets, very shortly and stoutly pedicelled or sub-sessile, subtended by small, broadly ovate acute bracts. Calyx 6 mm. long, the inequilaterally globoidal tube more than half the length and about as broad as long, its mouth contracted, the lobes ovate, obtusish, recurved, densely lanuginose within, thick and coriaceous. Petals wanting. Stamens small, shorter than the calyx. Pistil small, globose, lanuginose.

Manoa, lower Orinoco, Venezuela, May 1896. (Rusby and Squires, No. 423.) Very near and possibly the same as Jenman's No. 3839.

Parinarium pachyphyllum.

Inflorescence and lower leaf-surfaces finely gray-tomentellate. Branchlets stout, flexuous, obscurely sulcate, the internodes about 2 cm. long. Stipules not seen. Petioles 8 mm. long, stout, channeled above, bearing 2 small black glands about two-thirds of the way above the base. Blades 5 to 10 cm. long, 2 to 5 cm. broad, oblong, or oval, with acute or obtusish base and summit, entire, thick and coriaceous, drying brown, minutely gray-tomentellate beneath, the venation very finely and very stoutly anastomosing, prominent on both surfaces, more so beneath, the principal secondaries 20 or more on each side, slightly falcate, lightly connecting near the margin,

stout. Panicles terminal and in the upper axils, the latter shorter than their leaves, sessile or very short peduncled, rather densely flowered. Flowers very shortly and stoutly peduncled, the calyx 5 mm. long, the campanulate tube about half the length, strongly pilose within, the lobes ovate, acute. Petals nearly orbicular, shorter than the calyx lobes. Stamens about equalling the calyx, unilateral, the filaments dilated at the base. Ovary densely hirsute, the style filiform, the stigma capitate, about equalling the stamens. Fruit stoutly peduncled, 4 cm. long, 2 cm. broad, oblong, terete, the base abruptly contracted into the peduncle, obtuse, gray-tomentellate.

"A tree to 50 or 60 feet, common below 2,000 feet, principally on banks of streams. Collected near Bonda, 150 feet, February 15. Fruit ripens in October and November, but some remain on tree till next flowering season."

(Herbert H. Smith, Colombia, No. 1775.)

Moquilea cuspidata.

Glabrous, except the inflorescence, which is pilose with short appressed yellowish hairs. Branchlets stout, flexuous, terete, deep-purple, the internodes about 12 mm. long. Leaves divaricate or reflexed. Petioles 4 mm. long and almost as broad, deep-purple, the blades 4 to 8 cm. long, 1.5 to 3.5 cm. broad, oblong-ovate, with rounded base and abruptly short-acuminate and acute summit, entire, not shining, both surfaces almost alike, thick and coriaceous, the venation slender but sharply prominent, the secondaries about 12 on each side, ascending and faintly connecting close to the margin, connected by straightish tertiaries, the venation finely and strongly anastomosing. Stipules not seen. Panicles terminal and in the upper axils, sparsely leafy at the base, short-peduncled, widely spreading, the flowers very dense upon the short-peduncled divaricate branches, the spikes 2 to 4 cm. long and half as broad. Calyx 3 mm. long, the tube more than a third of the length, broadly campanulate, the lobes ovate, obtuse, thick. Stamens 10, nearly straight, about twice the length of the calyx, the filaments slender. Ovary small, broader than long, the style originating from the middle of the side, slightly exceeding the stamens.

"A tree to 50 feet or higher, in mountain forests near Las Partidas, Colombia, 3,500 feet, March 10." (Herbert H. Smith, No. 1773.)

Moquilea orinocensis.

(Fruiting specimen.)

Glabrous, the branchlets stout, terete, strongly ascending, leafy, the peduncles nearly erect. Petioles 3 mm. long, stout,

sub-terete, the blades 5 to 10 cm. long, 1.5 to 4 cm. broad, lance-ovate, with blunt or rounded base and a very short, blunt apical point, entire, thick and coriaceous, drying yellowish, shining above, the finely reticulate venation prominent on both sides, more so beneath, the principal secondaries about 12 on each side, strongly falcately ascending, connected by a series of slender loops near the margin. Stipules not present.

The one fruit seen is 6 cm. long 2.5 cm. broad, slightly compressed, slightly falcate, not angled, abruptly contracted into a short thick base and a somewhat longer and broader blunt terminal portion.

Punta Piedras Island, lower Orinoco, Venezuela, May 1896. (Rusby and Squires, No. 426.)

The species is very near *M. Guianensis* and very nearly the same as Fendler's specimen from Trinidad, which also appears to be undescribed.

Rourea laxiflora.

Specimen in the young budding state.

Inflorescence ferruginous, tomentellate, the branchlets stout, terete, flexuous. Petioles 2 to 4 cm. long, slender, sub-terete, swollen and corky-roughened at the base, where some are sharply deflexed, then falcately ascending. Leaflets 3, the lateral very short-petioled, 5 to 7 cm. long, 2.5 to 3 cm. broad, regularly oblong with rounded base and abrupt very short obtuse point, somewhat coriaceous, glabrous, the midrib lightly channelled above, prominent underneath, the principal secondaries very slender, 8 or 9 on each side, strongly falcate, the venation inconspicuous and very finely anastomosing. Terminal leaflet similar, but about a half larger, articulated about two-thirds of the way above the origin of the laterals. Panicles long and slenderly peduncled, compound, loose and open, the slender branches sub-opposite, the buds crowded upon the short ultimate branchlets. Fruiting peduncles at the base of the growth of the season. Fruit shortly and stoutly stipulate, slightly curved, 2 cm. long, two-thirds as broad, ovoid, turgid, minutely acute-pointed, lightly keeled on the convexity, glabrous but falcately nerved, externally dark-brown, light-brown and shining within. Seed solitary, oval, slightly compressed 1.5 cm. long and half as broad, purple-black, shining except the aril. Aril oblique, 2-lobed, the hilum in the sinus, lightly keeled at the base, the margins crenate.

Specimen unique, collected in Bolivia, by Miguel Bang, without number or data.

Tournatea costata.

Inflorescence and veins of the lower leaf-surfaces minutely downy. Branchlets very stout. Petiole of the one leaf seen

about 12 cm. long, the rachis about a half longer, both very stout, nearly terete. Leaflets 5 or 6 pairs, imperfectly opposite, nearly sessile, the petiolules about as broad as long, sharply articulated with the midrib, the blades 10 to 15 cm. long, 7 to 8 cm. broad, the lower shorter and relatively broader, elliptical with rounded or very slightly cordate base and very slightly emarginate summit, entire, thick and coriaceous, the venation impressed above, very prominent underneath, the principal secondaries 9 or 10 on each side, very stout, coarsely connected by the tertiaries. Racemes loosely and shortly paniculate from the nodes, the small thick bracts ovate and acuminate. Only buds seen, their pedicels short, stout, angled. Buds globose, about 6 mm. broad, the calyx thick and coriaceous. Petal one, broadly ovate on a short stout claw, strongly nerved. Stamens numerous, distinct, unequal in the bud. Pistil strongly curved.

Beni River shore, Bolivia, July 1886. (H. H. Rusby No. 978).

Lotoxalis phaseolifolia.

More or less puberulent throughout. Stems shrubby, tall. Stipules apparently deciduous, not seen. Petioles 6 to 15 cm. long, very slender, sulcate. Leaflets 3, the lateral on stout petiolules 2 mm. long, the blades 5 to 7 cm. long, 2 to 3.5 cm. broad, inequilaterally ovate, with blunt or rounded base and acuminate and acute summit, very thin, bright-green, sparsely short-pilose on both sides, the venation scarcely prominent, the secondaries 5 to 7 on each side, besides one that forms the upper margin near the base. Rachis 12 to 25 mm. long, its middle leaflet similar to the lateral, but somewhat larger and equilateral, the base more or less acute. The dimensions of the leaflets on another sheet, apparently the basal portion of the same plant, are fully a half greater than those here given. Peduncles 10 to 18 cm. long, very slender, sub-erect, the summit bifid, the recurved-spreading branches short, closely beset with the short bases of the fallen flowers, subtended by minute, subulate bractlets. Pedicels 3 to 5 mm. long, filiform, a little thicker at the summit. Sepals 1 cm. long, lanceolate, acuminate, and acute, finely nerved. Dissecting material wanting. Capsule 6 mm. long, broadly ellipsoidal, short-stipitate, the stipe broader than long, ribbed, the pod bearing 5 short, stout, distinct styles, and enclosed by the persistent calyx. Seed nearly as long as the pod, ovoid, short-beaked, strongly muricate, slightly curved.

"A shrub of 1.5 meters, at Antaheracana near Cochabamba, Bolivia, 750 meters altitude, June 1909." (Otto Buchtien, No. 2232.)

Lotoxalis manihotoides.

Petioles, lower leaf-surfaces, peduncles, etc., minutely puberulent. Branchlets stout, roughened with large leaf-scars. Leaves crowded at and near the summit, the petioles 7 to 15 cm. long, slender, channelled above. Stipules not apparent. Leaves pinnately 3-foliolate, the leaflets sessile; lateral leaflets 7 to 10 cm. long, 4 to 6 cm. wide, inequilateral, ovate, acuminate and acute, rounded to sub-truncate at the base, very thin, bright-green; terminal leaflet 3 to 5 cm. distant from the lateral, a half larger than the latter, of similar form but equilateral and slightly narrower; venation sparse and slender, somewhat prominent beneath. Peduncles slender, angled, as long as the petioles or longer, bifurcating, the branches about 1 cm. long, densely nodose with the persistent pedicel-bases, which are very short and broad, with concave summit. Mature bud ovoid, obtuse, 4 mm. long. Stamens connate at the base, unequal, the anthers oblong or oval, dorsifixed and versatile. Ovary oblong, muricate. Styles 3, stoutish, united at the base.

Vic. Cochabamba, Bolivia, 1891. (M. Bang, No. 2059).

Xanthoxalis unduavensis.

Tops of the young stems ferruginous-tomentose, other portions more or less pilose. Stems apparently reclining, much elongated, the base woody. Stipules 1 cm. long, lanceolate, acuminate, brownish, hyaline, delicately nerved, adnate to the petiole, for two-thirds of their length. Petioles to 6 cm. long, jointed at the junction with the stipules, erect-spreading, filiform, striate, pilose, carinate below on the adnate portion. Leaflets three, 1.5 to 3 cm. long and 12 to 20 mm. broad, subsessile, inequilaterally obovate, broadly and shallowly emarginate, with the lobes unequal and obtuse, sparsely or rather densely ferruginous-pilose on both surfaces, ciliate, the venation not conspicuous, the secondaries about 4 on a side, very slender, crooked. Peduncles very long, mostly much exceeding their leaves, filiform, axillary and crowded at the summit, cymosely branched, the bracts 3 to 5 mm. long, attenuate from the base, hyaline, the pedicels filiform, to 2 cm. long. Calyx 1 cm. long, the sepals lanceolate, attenuate, hyaline, 3-nerved. Corolla 12 or 14 mm. long, yellow. Longer stamens 5 mm. long, connate for nearly half their length, the tube hyaline, 10-nerved. Ovary 3 mm. long, oblong, the styles 5, filiform, 5 mm. long, distinct to the base, the stigmas capitate, rather large. Mature pod not seen. Immature seeds brown, oval, compressed, minutely beaked, somewhat tuberculate.

"Unduavi, Bolivia, 3,300 M. altitude, Nov. 1910." (Otto Buchtein, No. 620.) No. 621 from the same locality, is the same, but more abundantly flowering.

The plant is probably dimorphous, the above being a description of the flower with long styles.

Xanthoxalis flagellata.

Pilose with divergent gland-tipped hairs. Branches much elongated, slender, strongly sulcate. Stipule 4 to 6 mm. long, lanceolate, costate, adnate to the base of the petiole, which is sharply reflexed at the summit of the stipule, the reflexed portion 2 to 3 cm. long, slender, costate. Leaflets 12 to 20 mm. long, and wide, obcordate with broad, shallow, rounded sinus, a slight point in the center, thin, drying yellowish, the margin sparsely ciliate, the venation obscure. Peduncles to 7 cm. long, filiform. Calyx campanulate, 5 mm. long, 3 mm. broad, the sepals lanceolate, obtuse. Corolla 12 mm. long. Dissection material wanting. Fruit not seen.

'Unduavi, Bolivia, 3,300 meters altitude, November 1910." (Otto Buchtien, No. 2877.)

Xanthoxalis mollissima.

Densely pilose with spreading or mostly reflexed hairs. Stems stoutish, but weak, coarsely nodose, the base said to be woody. Stipules short, adnate, densely pilose and not clearly visible. Petioles to 12 cm. long, stout, erect, sulcate. Leaflets 3, sessile, 3.5 to 4.5 cm. long, 2.5 to 4 cm. broad, the terminal regularly obcordate with cuneate base, deep acute sinus and rounded lobes, the lateral a little oblique, thickish for this genus, densely pilose on both sides, the hairs coarse, appressed, the venation not prominent. Peduncle (but one seen) 2 dm. long, ascending, bifid at the summit, the branches subtended by linear green bracts 5 mm. long, the pedicels with similar ones. Flowers crowded on the branches, the pedicels at length 6 mm. or more long. Calyx 5 or 6 mm. long, green, thickish, the sepals apparently obtuse. Corolla nearly 2 cm. long, stoutly green-nerved.

Dissection material wanting.

"A shrub, to 1 meter, Unduavi, Bolivia, 3,300 meters altitude, November 1910.' (Otto Buchtien, No. 2882.)

Xanthoxalis biflexa.

Younger portions sparsely pilose with short, soft, white hairs, the leaves gray-tomentellate. Stems prostrate and ascending, tufted, to 1 dm. long, slender, angled, reddish. Stipules 2 mm. long, oblong or ovate, obtuse or acutish, mostly free, adnate at the base, hyaline. Petioles to 2 cm. long, filiform. Leaflets 3, sessile, 3 to 5 mm. long, 2 to 4 mm. broad, obovate, with cuneate base and rounded summit, thick, gray-green. Peduncle axillary, filiform, 1-flowered, 1 to 2 cm. long,

bearing above the middle a pair of lance-linear attenuate, hyaline bractlets, and at length mostly sharply reflexed at this point, the flower again sharply inflexed. Calyx 3 mm. long and nearly half the length of the corolla, green, or purplish, thick, the sepals ovate. Longer stamens equaling the styles about 3 mm. long, the others a little shorter, the filaments thick, nearly distinct, the anthers very small. Ovary oval, 1.5 mm. long, the styles about the same, thick, the stigmas capitate, small. Capsule 5 mm. long, lance-ovoid. Seeds less than 1 mm. long, nearly as broad, oval, acute, strongly flattened, narrowly margined.

"Unduavi, Bolivia, 3,300 meters altitude, November 1910." (Otto Buchtien, No. 2879.)

Ionoxalis pazensis.

Leaves minutely puberulent and ciliate. Bulb sub-globular or oval, some 1 cm. or more broad, clothed with the fibrous remains of the leaf-bases. Petioles to 2 dm. long, filiform, much more slender toward the base. Leaflets 3, from 6 to 12 mm. long, 10 to 20 mm. broad, almost equilaterally triangulate, broadly obcordate, the sinus acute, the lobes ovate, obtuse, 3-nerved, thin, bright-green. Peduncles exceeding the petioles and similar, the flowers umbellate, few, their pedicels to 3 cm. long, filiform, subtended by scarious, ovate acuminate bracts about 2 or 3 mm. long. Calyx about 7 mm. long, the sepals lanceolate, obtuse, green below, scarious above with 5 strong green nerves, the tubercles very small, narrow. Corolla (violet ?) 2 cm. long. Longer stamens considerably longer than the calyx, the anthers broad.

Dissection material wanting.

"Among shrubs on ridges near La Paz, Bolivia, 3,800 meters altitude, January 13, 1907." (Otto Buchtien, No. 615.)

Ionoxalis buchtienii.

Leaves almost imperceptibly puberulent. Bulbs firm, some nearly 2 cm. broad, clothed with ovate, acuminate and very acute, ciliate scales. Petioles to 7 cm. long, slender, strongly striate or sub-costate. Leaflets 3, sessile, 8 to 12 mm. long,9 to 15 mm. broad, ovate or sub-reniform with short-cuneate base and deeply and broadly obcordate summit, the sinus acute, the lobes oval with rounded ends, thick, deep-green. Peduncles exceeding the leaves, the umbellate flowers rather numerous, the pedicels to 1 cm. long, filiform, subtended by small ovate scarious bracts. Calyx 6 mm. long, the sepals ovate, finely nerved, the apical tubercles large and conspicuous, slenderly grooved through the center. Corolla 14 mm. long, (violet ?) finely nerved. Longer stamens shorter than the styles, the

others but little shorter, the filaments thickish, the anthers broadly oval. Pistil 4.5 mm. long, the styles about as long as the oval ovary, stout, the stigmas double. Capsule not present.

"In an uncultivated field at La Paz, 3,750 meters altitude, January 13, 1907." (Otto Buchtien, No. 618.) No. 3197 from 200 meters lower, is probably the same.

Erythroxylon densum.

Glabrous, the branchlets short and very stout, terete, gray and rough, very leafy. Stipules small, ovate, mostly broader than long, mucronate, thick, more or less keeled. Petioles 3 to 6 mm. long, red, stout, margined with the margins involute, keeled. Blades 3 to 7 cm. long, 2 to 5 cm. broad, thick, drying brown, oblong or oval, obtuse or acutish at the base and at the summit blunt, mostly with a minute apiculation, the midrib channelled above, prominent and rounded beneath, the coarsely reticulate slender venation lightly prominent on both surfaces, the secondaries very crooked. Flowers densely aggregated at the nodes, the pedicels very short, nearly as broad as long. Calyx 3 mm. broad, the sepals 1 mm. long, ovate, obtuse, thick and coriaceous. Petals 3 mm. long, erect, ovate, obtuse, bluntly keeled at the base, thick, minutely puberulent.

Ligule attached nearly at the base of the petal, and half its length, the lower portion very thick, brown, the upper hyaline and bifid. Stamen-tube crateriform, short, the glands wanting or obscure. Ovary ovoid, about twice the length of the calyx, 10-striate, two-thirds as long as the tortuous styles, which are slightly connate at the base, the stigmas capitate, rather large.

"A tree to 25 feet, occasionaf in thickets on mountain ridges, 2500 to 4500 feet. Flowers white, in March, the flowering branchlets often leafless. Collected 6 miles N. E. of Masinga, 2500 feet, March 28." (Herbert H. Smith, Colombia, No. 845.) Species near *E. revolutum*. May be the same as Schomb, Guiana, 925.

Erythroxylon uniflorum.

Glabrous, the branchlets slender, flexuous, terete, bearing large leaf-scars. Stipules ovate, acute, early deciduous. Petioles 3 or 4 mm. long, slender, narrowly margined, the margins involute. Blades 3 to 8 cm. long, 2 to 5 cm. broad, oval with rounded base and mostly obtuse summit, thick, the midrib narrowly depressed above, rounded and prominent beneath, the finely and strongly anastomosing venation prominent on both surfaces, the crooked secondaries irregularly anastomosing.

Bracts small, produced into attenuate, or filiform tips. Flowers 1 to 3 together, the pedicels 1 to 2 mm. long, sharply angled, dilated gradually into the turbinate calyx-tube, which is about as long as the triangular-ovate acute lobes, the calyx about 2 mm. long. Petals about twice the length of the calyx-lobes, ovate, blunt, lightly keeled. Ligule of the petal extending nearly across the latter, the inner portion about 4-toothed,the outer longer, the petal articulated at the point of insertion. Stamen-tube campanulate, nearly as long as the calyx, the basal glands very small. Ovary ovoid, longer than the tube of the stamens, the styles distinct, tortuous, longer than the stamens, the stigmas small.

"In thickets by a stream at Masinga Vieja, 800 feet, April 25. A shrub or small tree, 5-15 feet. Rather rare." (Herbert H. Smith, Colombia, No. 788.)

Picramnia villosa.

Branchlets, inflorescence, petioles, etc., gray-tomentellate, the branchlets finely nerved. Leaves (only the upper seen) 2 or 3 dm. long, on short, stout petioles, the leaflets about 5 on a side, not opposite, the petiolules scarcely longer than broad, the blades 4 to 7 cm. long, 2 to 4 cm. broad, the upper successively larger, oblong-ovate, the blunt base mostly slightly inequilateral, the summit abruptly contracted into a slender rigid acumination, entire, thick, deep-green on both surfaces, somewhat shining, the venation coarsely reticulate, slender, lightly prominent on both surfaces, the principal veins tomentellate on both surfaces. Panicle terminal, stoutly peduncled, loosely branched, the branches mostly simple, elongated, stout, spreading or recurved, coarsely angled, loosely flowered, the subsessile flowers one to several on short nodes. Sepals 1.5 mm. long, erect or slightly spreading, rigid, ovate, acutish, yellow-tomentose. Petals smaller than sepals, oblanceolate, obtuse. Stamens rudimentary. Ovary to base of style-branches shorter than sepals, deep purple, oval, a little broader than long, the stout subulate style-branches strongly recurved. Staminate flowers not seen.

"A tree, probably 30 or 40 feet high, in the forest." (Herbert H. Smith, Colombia, No. 1740.) Triana's No. 5705 in Herb. Kew, under the name "P. villosa", without author and apparently not published, apparently the same, has fruits which are 1.5 cm. long, oval-elliptical and black.

Protium mucronatum.

Glabrous, excepting the sparsely puberulent inflorescence. Branchlets stout, striate. Petioles of the foliage leaves 1 dm. or more long, stout, sub-terete, the rachis somewhat longer, the

leaflets 7, the lowest pair smaller, the larger 15 cm. long, 6 cm. broad, oblong-oblanceolate, with the base abruptly contracted into the very short petiolule and with a very abrupt acutish terminal point 10 or 12 mm. long; thin, deep-green, the slender venation prominent beneath and slightly so above, the principal secondaries about 15 on each side, lightly falcate and little ascending, anastomosing near the margin, the venation rather coarsely reticulate. Inflorescence leaves similar, the leaflets about 1 dm. long and narrower than those of the foliage leaves. Panicles crowded at the ends of the branchlets, the long stout peduncles sharply angled and striate, much branched above, the ultimate branchlets crowded at the summit and densely flowered at their summits. Bracts very small, ovate, acute, thick. Flowers sessile, the calyx 1 mm. long and 2 mm. broad, thick, lobed nearly half way, the lobes nearly semi-circular, with a minute point at the summit. Petals 3 mm. long, ovate, obtuse. Stamens 8, 2 mm. long, equalling the pistil, the filaments very short. Ovary short-conical. Disk with 8 obtuse protuberences.

"A tree to 50 feet, in damp, low forest near the coast. Flowers whitish. Don Diego, May 21," (H. H. Smith, Colombia, No. 2743.)

Protium Orinocense.

Glabrous, the branchlets stout, terete. Petioles 2 to 4 cm. long, stout, sub-terete, attached by a broad base. Leaf trifoliolate. Petiolules of the lateral leaflets 1 to 1.5 cm. long, stout, the blades 10 to 15 cm. long, 4 to 6 cm. broad, lance-oblong with inequilateral, blunt base and abruptly short-acuminate and obtuse summit, thick and coriaceous, deep-green, the slender venation prominent on both sides, the principal secondaries 10 or 12 on each side, nearly divaricate, the outer portion falcate and inter-arching near the margin, the slender venation strongly and rather finely anastomosing. Petiolule of the terminal leaflet 3 or 4 cm. long, the blade similar to the lateral, but nearly a half larger. Panicle terminal, sub-sessile, the branches erect, stoutly peduncled, loosely branched. Flowers crowded at the ends of the branchlets, minutely bracted, very shortly and stoutly pedicelled, the pedicels minutely white-pilose at the base. Calyx 2 or 3 mm. broad, the lobes very broadly ovate, acute, spreading. Corolla about twice the length of the calyx.

Near Santa Catalina, lower Orinoco, Venezuela, May 1896. (Rusby and Squires, No. 133.)

Another specimen from the same region, without number, may be a distinct species. Some of its leaves are 5-foliolate,

the leaflets distinctly oblanceolate. The calyx is similar, but the petals decidedly shorter.

Cedrela Boliviina.

Inflorescence sparsely and minutely canescent. Leaves (only the uppermost seen) 5 dm. long, the petiole 1 dm. long, slightly grooved upon the upper surface, like the rachis, the leaflets sub-opposite, 7 to 9 pair, the internodes about a third as long as their leaflets. Petiolules very slender, about 6 mm. long, articulating by a thin, disk-like base. Blades 8 to 16 cm. long, 2.5 to 4 cm. broad, the lower successively smaller, lanceolate, with mostly obtuse or sub-rotund base and long-acuminate summit, entire, thin, the slender venation lightly prominent beneath, the secondaries 15 to 20 on each side, abruptly dilated at the base, widely spreading, lightly curved and uniting to form a thin, brown revolute margin, the remaining venation very finely reticulate and faintly impressed on both sides. Panicle (much broken in my specimen) apparently as long as the leaves, distantly branched and very loose and open, the branches elongated, divariacate or the lower declined, pedunculate and loosely flowered, the flowers shortly and stoutly pedicelled,the bractlets broadly ovate, acuminate or attenuate, longer than the young buds. Calyx campanulate, 2 mm. broad and nearly as long, lobed nearly to the base, the lobes rounded. Corolla pilose, twice the length of the calyx, the upper petals very thick. Disk 5-lobed. Filaments very slender, short, the anthers oval, nearly as broad as long, compressed. Style stout, the stigma discoid and peltate, very large. Staminodia not apparent.

"A tall tree at Cotana, near Ilimani, Bolivia, 2,450 M. altitude, November 1911. (Otto Buchtien, No. 3199.)

Trichilia oblanceolata.

Glabrous, the branchlets rather stout, terete, very leafy. Petioles (only the upper leaves seen) 2 or 3 cm. long, slender, terete, bearing near the base one or more embryonic linear leaflets, 7 or 8 mm. long. Normal leaflets mostly 5, the petiolules of the lateral ones 5 to 6 mm. long, stout, lightly grooved above, the blades of the upper pair about 1 dm. long and 3 or 4 cm. broad, oblanceolate with acuminate base and abruptly acuminate and acute summit, thin, the slender venation prominent beneath and faintly so above, the principal secondaries 10 to 12 on each side, strongly falcate and irregularly anastomosing near the margin, the venation rather coarsely anastomosing. The lower pair similar but only about three-fourths as long. Panicles in the upper axils, shorter than their leaves, short peduncled, the flowers rather dense at the ends of the branchlets, the bractlets very small, ovate, acute, the flowers

very shortly and stoutly pedicelled, the pedicels faintly angled. Calyx about 2 mm. broad and half as long, sub-umbilicate at the base, lobed about half way, the lobes rounded or with a minute point at the summit. Petals nearly 4 mm. long. Stamen tube a little longer than the free portion of the stamens, pilose within. Stamens unequal, on very short and slender filaments, the anthers lance-oblong, the staminodia unequal, about two-thirds the length of their stamens, attenuate from a triangular base.

Mr. Smith has sent three specimens, with different localities and dates, under one number, his usual practice. The other two of this number pertain to *T. appendiculata* C. D. C., from which this is distinct, not only in its leaf characters, but in the distinct free filaments and the form and size of the staminodia. Karsten's *T. multiflora* is nearer *T. appendiculata* than to the present species.

"In forest region near Calaqualito, 1200 feet. January 18. Appears to have another flowering season in August." (Herbert H. Smith, Colombia, No. 447.)

Byrsonima Herbert-Smithii.

Glabrous, excepting the inflorescence. Branchlets slender, terete, widely spreading. Petioles 6 to 12 mm. long, grooved above, the base dilated and enclosing the base of the connate stipules which are 4 to 6 mm. long, ovate, acuminate and acute, concave, thickish, brown. Blades 7 to 14 cm. long, 2.5 to 5 cm. broad, oblong with abruptly and shortly produced base and mucronate summit, thickish, somewhat lustrous, the venation very slender, not prominent, the secondaries 8 or 10 on each side, with obscure intermediate ones, connecting at some distance from the margin, the venation loosely reticulate. Raceme solitary, terminal, short-peduncled, the peduncle bearing one or more small subulate bracts, the rachis 7 to 12 cm. long, slender, puberulent, rather densely flowered, the flowers mostly recurved. Pedicels 6 to 8 mm. long, subtended by a small ovate, acute, brown, pilose bract, and bearing a pair of similar ones below the middle, thickened upward and costate. Sepals 3 mm. long, equaling the claw of the petal, the limb of the latter nearly as long, oval with subtruncate base, not concave. Filaments slightly exceeding the calyx, the ovoid obtuse gray anthers half as long. Styles nearly as long as the filaments.

"A tree to 50 feet, occasional in mountain forest, 3000 to 5000 feet. Specimen from Las Nubes road, 3500 feet, December 5. Petals rosy-lilac." (Herbert H. Smith, Colombia, No. 1502.) The same apparently collected by Spruce at Tarapota.

Pterandra opulifolia.

Tomentellate, except the upper leaf-surfaces, which are sparsely pilose with white hairs. Branches very stout, terete. Petioles 1 cm. long, extremely stout, strongly channeled above, bearing near the base a pair of short, incurved puberulent horns. Blades 15 to 20 cm. long, 10 to 15 cm. broad, oval with lightly cordate base and a very short blunt point at the summit, entire, thickish, brown underneath, where the venation is strongly prominent, the secondaries 7 or 8 on each side, spreading and regularly falcate, connecting at the margin and connected by coarse curved tertiaries. Peduncles 3 or 4 cm. long, very stout, the flowers densely umbellate, the pedicels about 13 mm. long, obsoletely bracteolate at the base, stout, thickened upward. Calyx 4 mm. broad, 8-glandular, the glands oval, large. Claw of the petal slightly exceeding the calyx, the limb nearly 6 mm. long, concave, the base cordate. Filaments 2.5 mm. long, dilated and slightly connate at the base, nearly glabrous. Anther nearly half as long as the filament, the wing narrow, hyaline. Ovaries nearly as long as the filament, pilose, the styles stout, equaling the ovary in length.

"Twining or trailing to 20 feet, the petals yellow, changing to orange. Rare in shrubbery along a water-course, Victoria estate, 3500 feet, March 21." (Herbert H. Smith, Colombia, No. 1512.)

Heteropteris rhombifolius.

Inflorescence and flowers somewhat strigose or sericeous. Branchlets slender, ascending, terete, striate and tuberculate, the internodes about as long as their leaves. Petioles slender, 6 to 10 mm. long, 2-glandular about the middle, the glands black. Blades 2.5 to 4 cm. long, 1.5 to 3 cm. broad, irregularly oval, with rounded base and obtuse or minutely apiculate summit, thin, dark-green, the venation very slightly prominent above, the secondaries about 8 on a side, spreading, crooked, weak. Racemes terminal, subsessile and axillary, the latter about half the length of their leaves, floriferous only near the summit. Pedicels in flower about 6 mm. long, elongating in fruit, slender. Calyx 4 mm. broad, 8-glandular, the glands large, sericeous. Petals 6 mm. long, the claw a third of the length, spreading or slightly recurved, the limb oval, obtuse, denticulate, obscurely auriculate at the truncate base. Stamens 10, about as long as the calyx, equal, the filaments dilated downward, sparsely pilose, connate. Pistils exceeding the stamens, the ovary densely white-pilose, the style tapering, the stigma small.

"A vine to 15 feet, in thicket near San Pedro plantation, 100 feet, February 21." (Herbert H. Smith, Colombia, No.

1532.) Apparently the same collected by Burchell, near Caracas.

Tetrapteris alloicarpha.

Glabrous. Branchlets short, divergent or widely spreading, slender, lightly angled, very leafy. Petioles 5 or 6 mm. long, channeled above, the stipules very small, ovate and obtuse. Blades 6 to 10 cm. long, 2.5 to 5 cm. broad, ovate with acute base and short-acuminate and acutish summit, thin, the slender venation slightly prominent on both surfaces, the secondaries about 6 on a side, ascending and lightly falcate, obscurely connecting, the faint venation loosely reticulate. Panicles terminal, sub-sessile, much branched and the branches subtended by large, very thin brown bracts, having a stout greenish midrib and cordate, amplexicaul or sub-connate bases. Pedicels slender, 6 or 7 mm. long, strongly striate or sulcate, 2-bracteolate at the middle. Calyx 3 mm. long, 8-glandular. Claw of the petal 2 mm. long, reflexed, the limb 4 mm. long, 3 mm. broad, ovate with truncate base and rounded summit, not concave. Filament broad, thin, glabrous, as long as the claw, the anther oblong, half as long. Ovaries short, pilose, the styles stout, as long as the stamens.

"A tree to 30 feet, moderately common in dry forests, mostly in low land near streams below 1000 feet. Collected near Bonda, 150 feet, July 10." (Herbert H. Smith, Colombia, No. 343.) This is the type.

Another specimen of the same number, in fruit, collected near Bonda, January 4. In this, the formerly delicate brown bracts are green and leaf-like, up to 1.5 cm. long, broadly ovate. The body of the fruit is 7 mm. long, the upper wings strongly ascending, the longer more than 2 cm. long, the shorter nearly as long. 7 mm. wide, oblong or a little wider above, the summit rounded, stoutly many-nerved, the nerves erect and branching above. Lower wings 1 cm. long, 6 mm. broad, oval or obovate with rounded summit. Middle wing of crest nearly 1 cm. long and as broad or broader, the summit somewhat hollowed out, the nerves straight. Lateral wings of crest small, broadly oval.

Tetrapteris tenuistachys.

Glabrous. Branchlets elongated, slender terete, striate, reddish. Petioles 4 or 5 mm. long, stout, broadly channelled above, not glandular, the blades 7 to 10 cm. long, 2 to 3.5 cm. broad, lanceolate with acute base and long-acuminate and acute summit, entire, thin, drying brownish, the venation very slender, lightly prominent on both sides, the secondaries 5 or

6 on each side, strongly ascending, lightly curved, connected by numerous crooked tertiaries and these by very numerous others. Racemes axillary, much shorter than their leaves, slender, short-peduncled or sub-sessile, rather loosely flowered, the bracts at the base of the pedicels 1.5 to 2 mm. long, recurved, ovate, obtuse. Pedicels 5 mm. long, very slender, erect or spreading, 2-bracteolate at about the middle, the bractlets half as long as the pedicel and nearly as broad as long, obovate with rounded summit, faintly puberulent, brown or purple, thickish. Calyx 5 mm. broad, 10-glandular, the glands large. Petals 6 mm. long, the claw short, spreading, the limb obovate, lightly concave, fimbriate, strongly carinate. Stamens half as long as the petals, the filaments lightly connate below, slightly pilose. Styles stout, straight about equaling the stamens, the stigma truncate, the ovary densely pilose. Fruit very young, the wings linear-oblanceolate with rounded summit, the dorsal crest deeply lobed, the tuberculate body of the fruit bearing a narrow appendage in the center of each side.

"A twining vine, to 20 or 25 feet, rare in damp forest, 500 to 2,000 feet, January to May. Specimens from Don Amo road, 500 feet, February 1." (Herbert H. Smith, Colombia, No. 1511.)

No. 1527 from Jordan, 800 feet, February 22, the "petals yellow", is the same.

Securidaca Orinocensis.

Branchlets, entire inflorescence, veins of the lower leaf-surfaces and of the body of fruit gray-puberulent and slightly ferruginous. Flowering branchlets recurved, terete, nodose, leafy, the internodes unequal, the leaves very shortly stout-petioled. Blades thickish, 2–7 cm. long, broadly ovate, slightly cordate, the summit blunt or rounded, the margin sub-entire, very thinly revolute, the midrib slender and sharp underneath, lightly impressed above, the principal veins slender, about 8 pairs with fainter ones alternating, strongly upcurved and lightly anastomosing near the margin. Glands blackish, attached to lowest vein near the midrib. Racemes terminal, recurved, naked, the lower portion strongly nodose from the fallen flowers. Pedicels stoutish, about 3 mm. long. Flowers 2 cm. long. Lowest sepal 5 mm. long, obtuse, saccate, finely nerved, the lateral about two-thirds as long, broadly ovate, with rounded summit, the wing-sepals 12–15 mm. long, 6–8 mm. broad, the body ovate, obtuse, the lower third cuneate. Wing-petals 12 mm. long, 2.5 mm. wide, obliquely oblanceolate with rounded summit, and darker base. Keel 13 mm. long, not including the narrow claw, nearly as wide, erect, lightly 3-lobed, the middle lobe short and broad, strongly appendaged

on the face, the appendage coarsely lacerate in the middle, parted into several club-shaped divisions at each side. Stamen-tube about 12 mm. long, saccate and short-spurred near the base, the free portion of the unequal filaments 2–3 mm. long, the anthers small. Stout style recurved above, exceeding the anthers by 3 or 4 mm., the stigma incurved. Fruit, including the wing, 2.5 cm. or more long, the narrow base 3 mm. long, the strongly wrinkled body 12 mm. long by 6 mm. broad, the lower wing 20 mm. long on the more or less dentate lower edge, 16 mm. on the upper, its greatest breadth 6 mm. obliquely oblong, blunt, slightly falcately recurved, finely many-nerved. Crest wing-formed, straight, nearly as long and about as wide as the wing, slightly wider near the summit, where it is 2 or 3 dentate.

Sacupana, near the mouth of the Orinoco, April, 1896. (Rusby and Squires No. 21.)

Securidaca venosa.

Specimen in fruit. Rachis, petioles, veins, fruit, etc., softly, finely and rather sparsely puberulent. Branchlets very slender, flexuous, terete. Petioles very short, biglandular at the point of insertion, the blades 3 or 4 cm. long, 2 to 2.5 cm. broad, oval and nearly elliptical, entire, revolute, thick, glabrous above, with the midrib lightly impressed, the midrib and finely reticulate venation very prominent beneath, with the principal veins puberulent, the principal secondaries 5 or 6 on each side. Inflorescence widely and loosely paniculate. Pedicels of the fruit 5 to 7 mm. long, very slender, dilated and annulate at the summit, the annulus thick. Fruits 4 cm. long, the body 8 mm. long, obovoid, pubescent, very strongly reticulate, the marginal ribs continued into the wing and crest, the lower one forming the lower edge of the wide, 4-costate upper margin of the wing. Greatest breadth of wing about 10 or 12 mm. its nerves strongly falcate, their terminal portions nearly at right angles to the margin. Crest nearly twice the length of the body, about 5 mm. broad, its upper margin thick, obtuse, its lower margin continued into a short stout point.

Near Ciudad Bolivar, Venezuela, Rusby and Squires, April 1896, without number. Very near Fendler's No. 2306 and apparently the same as Jenman's No. 5005. Fendler's has a broader wing and the crest acuminate and falcately incurved.

Monnina Buchtienii.

Short-tomentose throughout. Branchlets stout, densely leafy. Petioles 6 mm. long, stout, broadly and shallowly grooved above, the blades 4 to 8 cm. long, 2 to 4 cm. broad, ovate with lightly cordate base and acute or obtusish or minutely apicu-

late summit, thick, deep-green, drying brownish or beneath yellowish, the indumentum short and dense on both sides, especially above, the venation prominent beneath, the secondaries about 8 on each side, widely spreading, crooked, connecting about three-fourths of the way from the midrib to the margin, the venation loosely reticulate. Racemes in the upper axils or sub-paniculate at the summit, small, short-peduncled, the flowers very shortly stout-pedicelled. Outer sepals thick and rigid, densely hairy and ciliate, about 3 mm. long and broad, ovate with rounded summit, the lateral moderately inaequilateral; the inner deep blue, ciliate at the base, pilose on the keel, 5 mm. long, 6 mm. broad when fully expanded, venose. Lower petal 5 mm. long and much broader, pale, venose, thin, obscurely 3-lobed. Lateral petals 5 mm. long, the brownish thick, basal portion triangular and acuminate, the limb thin, blue, inflexed, obovate, about 1 mm. long. Stamen-tube about half the length of the lateral petals, strongly nerved, pilose, the summit fimbriate, the fimbriae nearly as long as the slender, curved filaments, the anthers small. Ovary oval, ellipsoidal, 2 mm. long, puberulent, the style stout, broad, incurved.

A vine-like shrub to 3 meters at Unduavi, Bolivia, November 1910, 3,300 M. altitude. (Otto Buchtien, No. 2887.)

Phyllanthus (§ **Cicca**) **heteromorpha.**

Plant divecious. Pubescent. Branches flexuous, stoutish, gray, more or less muricate and nodose, the branchlets numerous, short, spreading or divergent. Flowers sppearing either before the leaves and densely clothing the branchlets, or with the young leaves and their less abundant stipules, which are about 3 mm. long, ovate, acuminate, purple, persistent. Leaves in the flowering specimens 1 to 3.5 cm. long, in fruit, 5 to 10 cm. long, 2.5 to 5 cm. broad, varying from oblong to ovate and obovate, the base acutish and with a very short petiole, very abruptly short-pointed and acutish, entire, thin, bright-green, sparsely strigose above, pubescent beneath, where the venation is conspicuous, the very slender secondaries about 10 on a side, the outer portions strongly falcate and more or less looped together at some distance from the margin, the venation rather coarsely anastomosing. Flowers loosely or densely fascicled on the short node-like branchlets, the very slender pedicels varying from 2 to 3 mm. long.

Staminate flowers.—Sepals 4, spatulate or sub-rotund, 1.5 mm. long, thin, the disk thickish, crateriform or annular, the filaments but little longer than the oval anthers, the cells of which are parallel and contiguous; or in some of the flowers the filaments elongated, exceeding the sepals.

Pistillate flowers not seen. Fruiting pedicels 5 mm. long. Fruit apparently somewhat fleshy, 1 cm. broad, a little more

than half as long, somewhat quadrangular, tuberculate, purplish, subtended by the persistent and accrescent calyx, and bearing four persistent styles which are linear, stout, and undivided. Cells 4, each one-seeded, the arilled seed attached by the middle of the face to the central placenta. Seed 4 mm. long, triquetrous, black, slightly wrinkled.

Flowering Specimens: "A shrub, 6 to 8 feet, edges of dry forest, 6 miles south of Mametoca, about 400 feet, April 11," and "a shrub of shrubby tree to 7 or 8 feet, in dry thickets near Masinga, 250 feet, May 30, the flowers pale greenish. I believe that No. 410 is the fruit of this species." (Herbert H. Smith, Columbia, No. 1716.)

Fruiting Specimen: "A shrub or small tree, occasional in dry forest below 1,000 feet. Masinga, July 31." (Herbert H. Smith, Colombia, No. 410.)

This species was at first regarded as *P. nobilis*, and may be the same as Eggers' Ecuador No. 15574. Farther study, however, convinces me that it is distinct from that glabrous plant. A specimen collected on the lower Orinoco, Venezuela by Rusby and Squires is pubescent, but I am now inclined to include that with the present species.

Croton (§ Lasiogyne) bondaensis.

Densely short-stellate-tomentose and gray-green. Branchlets short, stout, densely leafy, bluntly angled or sulcate. Stipules setaceous and brown from a broad green base, 6 mm. long, deciduous. Petioles 6 to 8 mm. long, stout, the glands at the summit stipitate and discoid. Blades 4 to 7 cm. long, 2 to 4 cm. wide, ovate, with rounded base and abruptly short-acuminate and acute summit, thickish, coarsely and unevenly serrate-dentate, with acute teeth and sinuses and in the latter an occasional gland similar to those of the petiole, the venation slightly prominent beneath, the secondaries about 6 or 7 on a side, strongly falcate-ascending, and obscurely connecting at some distance from the margin, the remaining venation obscure. Lower bracts broad, gray-green, the upper setaceous like the stipules, about equaling the globose buds. Spikes terminal, solitary or nearly so, leafy-bracted at the base, rather short, the pistillate flowers below, the staminate above.

Staminate Flowers.—Calyx parted nearly to the base, the lobes 2 mm. long, ovate, obtusish, thick. Disk of 5 thick, fleshy, brown, obovate or short-stipitate glands attached to the bottom of the calyx. Petals spatulate, unguiculate, thin, fimbriate. Stamens 10, about as long as the calyx, the filaments filiform, the anthers broadly ovate.

Pistillate Flowers.—Calyx 3 mm. long, the sepals obovate, acute. Disk much like that of the staminate flower. Petals not apparent. Ovary globoidal, densely gray-pilose. Styles 5, distinct, elongated, tortuous, entire, pilose, the stigma capitate. Fruit 4 mm. long, broadly ovoid with rounded top, lightly lobed.

"A shrub, to 3 or 4 feet. Rare in dry forest below 500 feet. Collected in an open water course 6 miles north of Bonda, about 100 feet altitude, November 1, and from Masinga 250 feet, July 7." (Herbert H. Smith, Colombia, No. 1467.)

Croton (§ Lasiogyne) cienagensis.

Finely, closely and softly stellate-puberulent. Branchlets slender, terete, recurved. Stipules minute, setaceous, caducous. Petioles 6 to 8 mm. long, slender, the glands not obvious. Blades 6 to 8 cm. long, 3 to 6 cm. broad, ovate with cordate base, the sinus acute and closed, the lobes broad and rounded, the summit very abruptly acuminate and acute, the margin entire. Leaf thin, brownish above, gray beneath, softly tomentose, the venation slightly prominent beneath, the secondaries 6 or 7 on a side, the lowest pair from the summit of the petiole, falcate-ascending, obscurely connecting and obscurely connected by few tertiaries. Spike terminal, very loosely flowered, pistillate below, staminate above, the bractlets of the pistillate very small, brown, setaceous, of the staminate ovate, gray-green, very small. Pistillate flowers solitary, sessile, staminate 2 or 3 together, on filiform pedicels rather longer than the flowers.

Staminate Flowers.—Sepals 2 mm. long, ovate, acutish, with a strong green midrib. Petals nearly as long, obovate with narrow base. Torus pilose, the disk not apparent. Stamens about 20, the filaments a little longer than the sepals, the anthers large.

Pistillate Flowers.—Calyx-lobes 1.5 mm. long, narrow, yellow at the summit. Glands of the disk obscure, adnate to the base of the calyx. Petals none. Ovary globose, gray-hairy. Styles explanate, distinct, entire, the stigma small, involute. Fruit not seen.

"A tree or large shrub, to 15 feet of very peculiar appearance, due to the dark-green velvety foliage. Moderately common in scrubby forest-plains, 5 miles east of Cienaga, September 11, Not observed elsewhere." (Herbert H. Smith, Colombia, No. 368.)

Croton (§ Lasiogyne) obtusus.

Stems, petioles, inflorescence and lower leaf-surfaces densely and softly tomentose and light-gray or whitish, the upper leaf-surfaces deep-green and sparsely stellate-dotted, more or less

pitted in drying. Branches stoutish, terete. Stipules not visible. Petioles to 2 cm. long, slender, narrowly grooved, the glands minute, sessile, blackish. Blades 4 to 7 cm. long, 2.5 to 4 cm. wide, oval or ovate with rounded, minutely apiculate summit and minutely cordate rounded base, the margin bearing very minute gland-like teeth; thick, roughish on the upper surface, the venation slender, not conspicuous, the secondaries about 6 on a side, nearly straight. Spike terminal, sub-sessile, not much elongated, rather densely flowered, the pistillate below, few, solitary, on very short, angled pedicels, the staminate crowded above, 2 or 3 together on filiform pedicels longer than themselves and subtended by shorter subulate gray-hairy bractlets.

Staminate Flowers.—Sepals 2 mm. long, ovate, obtuse, thin. Petals longer, lanceolate, obtuse. Stamens 15, on a long-pilose torus, the filaments filiform, a little longer than the petals. Disk 1.5 mm. broad, the lobes oval, partly adnate to the base of the calyx.

Pistillate Flower.—Calyx parted nearly to the base, the lobes 2.5 mm. long, linear, obtusish. Petals none. Disk similar to that of the male flower, but larger. Ovary depressed globose, densely long-pilose. Styles elongated, spreading, distinct, entire, the stigmas small.

"A shrub, to 5 or 6 feet, in thickets on dry rocks on a hill near the sea at Santa Marta, September 13." (Herbert H. Smith, Colombia, No. 371.)

Croton (§ Palanostigma) ochromaefolius.

Densely and coarsely yellow-scurfy and tomentellate. Branches very stout, coarsely angled, the leaves crowded at their ends. Stipules 6 mm. long, narrowly linear and attenuate, early deciduous. Petioles (only the upper seen) 1.5 dm. long, 6 mm. thick at the base, very stout, narrowly and deeply grooved on the upper side, and bearing a pair of small black, globoidal sessile glands at the summit. Blade 2 dm. long and nearly as wide, broadly and shallowly cordate, coarsely toothed when young, then 3-lobed, and later 5-lobed, the lobes triangular-ovate, acute, the sinuses acute or acutish, extending about a third of the way, the margin closely beset with minute yellow, gland-like tubercles or teeth. Leaf thick but not coriaceous, roughish. 5-ribbed from the base, the ribs nearly straight, stout, prominent on both surfaces, the secondaries of the midrib about 7 on a side, widely spreading, little curved. Peduncles shorter and stouter than the petiole, very strongly and sharply angled. Spike becoming 4 dm. or more long and 2.5 cm. wide, the flowers distinct at the base, dense above, brownish-yellow, the fascicles densely many-flowered, the pedicels at length about as long as the flowers, stout, the bracts very small, linear, attenuate.

Pistillate flower solitary in the center of the fascicle, the calyx divided nearly to the base, the lobes ovate, obtuse, 4 mm. long. Glands of the disk very small, adnate to the base of the calyx. Petals sub-setaceous, two-thirds the length of the sepals. Ovary depressed-globose, densely and long brown-tomentose. Styles 5, about 4 mm. long, distinct, shortly 2-fid, the lobes at length recurved.

Staminate flowers later in developing and smaller, the petals broad, shorter than the sepals, the stamens numerous, the filaments somewhat sinuous, the anthers oblong, very obtuse or truncate, narrowly white-margined.

Fruit not seen.

"A shrubby tree, 8 feet high. A single specimen observed, in second growth at Valparaiso, 4,500 feet. January 18." (Herbert H. Smith, Colombia, No. 1770.)

Acalypha salicioides.

Principal veins of the lower leaf-surfaces somewhat coarse-pilose. Branches rather slender, terete, finely nerved, very leafy. Stipules 4 to 6 mm. long, setaceous. Petioles to 2 cm. long, slender, somewhat angled and nerved. Blades 1 to 2 dm. long, 4 to 6 cm. broad, lanceolate with blunt base and acuminate and obtuse summit, finely crenate-dentatt when mature, when young bearing minute yellowish cartilaginous teeth, and when very young the margin beautifully and densely beaded by these teeth. Blade thin, deep-green, the venation prominent beneath, slender, whitish, the secondaries about 6 on a side, the lowest pair basal, falcate and then sub-erect, not connecting at the ends, conspicuously connected, by numerous crooked tertiaries. Staminate spikes mostly solitary in the axils, to 6 cm. long, 2 or 3 mm. thick, sub-sessile, an occasional pistillate flower at their base or in other axils.

Staminate flowers densely massed, short-pedicelled, the rachis thick, the bracts minute. Sepals 0.5 mm. long, ovate, about as long as the filaments, the anthers large, sub-globose. Dissecting material for pistillate flowers wanting.

"A small tree to 20 feet, moderately common in damp forest, 500 to 2,000 feet, blooming in September and January. From Don Amo road, 500 feet, January 13. Also from near Cacagualita, 1,200 feet, February 23, and on rocky banks of Rio Gairo, 3,000 feet, March 22. The last is considerably larger as to leaves, etc." (Herbert H. Smith, Colombia, No. 1428.)

Acalypha amplifolia.

Young stems, petioles, etc., finely tomentellate, the upper leaf-surfaces scabrous. Stipules broadly ovate, with a long

attenuate summit. Petioles to 3.5 dm. long, stout, pale-green, strongly sulcate, erect. Blade to 3 dm. long, 2.5 dm. broad, regularly cordate, the sinus broad and acute, the lobes rounded, the summit very abruptly contracted into a short, very acute point, the margin finely serrate with acute teeth. Leaf thin, 5 to 7-nerved, the secondaries of the midrib about 12 on a side, extremely slender, nearly straight, the remaining venation obscure. Spikes nearly as long as their petioles, very slender, unisexual, the staminate densely flowered, the pistillate very loosely so.

Staminate Flowers.—Rachis and bracts clothed with long setose hairs, the sepals terminating in the same. Flowers very minute.

Pistillate inflorescence clothed with similar, but smaller setose hairs.

"A shrubby tree, to 15 feet. In a second-growth thicket near Valparaiso, 4,000 feet, January 26. Only one specimen seen." (Herbert H. Smith, Colombia, No. 1433.)

Acalypha Williamsii.

Dioecious, only the pistillate plant seen. Softly pubescent throughout. Branches slender, terete, leafy at the summit. Stipules about 8 mm. long, narrow, regularly attenuate from the base. Petioles to 15 cm. long, very slender, sulcate. Blades 8 to 12 cm. long, 5 to 10 cm. broad, ovate with slightly cordate base and abruptly short-pointed summit, very thin, gray-green, the margin crenate, 5 to 7-nerved, the lowermost pair of nerves very small, the secondaries about 6 on a side, strongly falcate, then nearly erect, all connected by numerous very slender, rather crooked tertiaries. Pistillate racemes (only 2 seen), 5 to 8 cm. long, simple or branched above, filiform, loosely flowered. Flowers solitary or two together, very shortly and stoutly pedicelled, the pedicels elongating slightly in fruit, subtended by minute bracts. Sepals 4, sub-equal, triangular-lanceolate, acuminate and acute, enlarging but little in fruit. Styles longer than the ovary, finely divided, the divisions nearly parallel. Capsules 3 mm. broad, 2 mm. high, deeply lobed, muricate.

"A bush or small tree at San Buena Ventura, 1,500 feet, November 20, 1901." (R. S. Williams, Bolivia, No. 655.)

Acalypha subscandens.

Softly gray-pubescent, the hairs of the stem divergent. Stipules 2 mm. long, lanceolate, acuminate and acute, rigid. Branchlets short, slender, leafy at the ends. Petioles 3 to 5 mm. long, slender. Blades 2 to 7 cm. long, 1 to 3 cm. broad,

oval or ovate with rounded base and blunt or obtuse summit, thin, serrate-dentate with blunt teeth and acute sinuses, 3- or occasionally 5-nerved, the lateral nerves short, the venation inconspicuous, many transverse veins connecting the principal ones. Staminate spikes to 6 cm. long, including the short peduncle, slender, rather loosely flowered.

Staminate Flowers.—Pedicels filiform, twice the length of the flower, which is 4-merous, 1 mm. broad, the sepals ovate, minutely brown-apiculate.

Pistillate flowers not found.

"A slender shrub to 6 feet, apparently sub-scandent. One plant only seen in a thicket in a clearing in a rather dry situation, 100 feet altitude, June 3." (Herbert H. Smith, Colombia, No. 2393.)

Acalypha jubifera.

Densely long-white-pilose, the hairs of the stem, etc., reflexed. Stipules 6 mm. long, lanceolate, long-acuminate and acute, brown, the midrib prominent. Petioles to 8 mm. long, slender, shallowly grooved above. Blades 8 to 12 cm. long, 2.5 to 6 cm. broad, ovate with regularly rounded base and abruptly short-acuminate and acute summit, thin, densely soft-hairy, gray-green, serrate, the teeth short and broad, erect, the sinuses acute, 3 or 5-nerved from the summit of the petiole, the lateral nerves short, the secondaries slender, about 8 to 10 on a side, strongly ascending, then upcurved to connect near the margin, connected by numerous short, crooked tertiaries. Staminate catkins to 7 cm. long, about 4 mm. thick, densely flowered.

Staminate Flowers.—Pedicels filiform, longer than the flowers, which are 1.5 mm. broad, 4-merous, the lobes broadly oval, obtuse, long-setose.

Pistillate flowers not found.

Collected in Bolivia by M. Bang, without number, locality or date. Specimen unique.

Acalypha asterifolia.

Grayish-pilose throughout, with long soft hairs, those of the stem and petioles reflexed or divergent. Stems slender, somewhat angled or costate. Stipules setaceous, 4 or 5 mm. long, Petioles to 6 cm. long, slender, strongly nerved. Blades 8 to 16 cm. long, 3.5 to 7 cm. broad, ovate, with lightly cordate base, and abruptly acuminate and attenuate summit, very thin, gray-green, the venation not prominent, 5 to 7-nerved, the very slender secondaries 5 or 6 on a side, the remaining venation obscure. Margin regularly crenate-dentate, the sinuses acute.

Spikes 3 to 3.5 cm. long, the lower portion, sometimes half of the length, bearing several pistillate bracts, the upper staminate portion about 3 mm. thick, densely flowered.

Staminate Flowers.—Pedicels filiform, nearly or quite as long as the flower, which is 1.5 mm. broad when fully expanded.

Pistillate Flowers.—Bracts foliaceous, veiny, 8 mm. broad, 3 mm. long, cordate and clasping, reniform, the margin rounded, crenate and long-ciliate. Ovary a little more than 1 mm. broad, and half as high depressed, lightly lobed. Styles 8 mm. long, very slender, distinct, sparingly branched, the branches extremely fine.

"A shrub to 5 or 6 feet. Occasional in damp and shady ground in dry forest region below 1,500 feet. Nearly as variable as No. 1417, but always distinguished by the long peduncles (Pistillate portions of spikes.—H. H. R.). Specimen collected near Masinga, 400 feet, October." (Herbert H. Smith, Colombia, No. 429.)

Pera benensis.

Leaves lepidote on the lower surface, apparently from the bases of the fallen hairs, the middle portion pubescent. Branchlets short, stout, coarsely angled and nodose from the fallen leaves. Petioles 1 to 2 cm. long, slender, channeled above, the blades 6 to 12 cm. long, 4 to 7 cm. broad, oval with rounded base and very slightly produced obtuse summit, entire, deep-green, glabrous above, with the midrib lightly grooved, the slender venation lightly prominent on both sides, the principal secondaries numerous, straightish, spreading widely, connecting at a considerable distance from the margin. Of the inflorscence, only the old fruiting cymes are present, the capsules having dehisced and lost their seeds. These cymes are small, subsessile at the base of the branchlets and dense. Fruits shortly and stoutly pedicelled, apparently about 5 mm. broad. The open valves are nearly one cm. long and half as broad. Seeds 5 or 6 mm. long, ovoid, lightly compressed, black, strongly shining, with a small, light-brown strophiole.

At the Junction of the Rivers Beni and Madre de Dios, Bolivia, August 1886 (Rusby No. 2646).

The superficial appearance of this species is identical with that of *P. oppositifolia*, of Cuba, but the seeds are several times larger than those of the latter, and are characteristically distinct.

Chaetocarpus pearcei.

Specimen in fruit. Branchlets stout, flexuous, terete, nodose and corky-roughened. Petioles 6 to 8 mm. long, stout,

narrowly margined except at the base. Blades about 1 dm. long, 4 or 5 cm. broad, oval with the base very abruptly contracted into the petiole and with abruptly very short-acuminate and acute summit, thick and coriaceous, somewhat shining above, the venation slender, lightly prominent on both sides, the principal secondaries about 7 on each side, crookedly interarching near the margin, the venation coarsely reticulate. Capsule 12 to 14 mm. long, externally light-brown, muricate and pitted where the trichomes have disarticulated, the valves thick and woody, within light brown and shining. Seed not seen. A low tree.

Near Ingles-Ingles, Bolivia, 6000 feet, August 8, 1902. (R. S. Williams, No. 1576.)

Sebastiania (Microstachys) Boliviana.

Gray-pubescent throughout, the hairs of the stem divergent or slightly reflexed. Stems much-branched, the branches very slender, recurved. Stipules obsolete. Petioles 1 to nearly 2 mm. long, stout. Blades mostly 1 to 2 cm. long, 3 to 6 mm. broad, lance-ovate with rounded base and obtuse or acutish summit, sparsely serrulate, thickish, the midrib broad, the secondaries about 6 on each side, widely spreading, crooked, connecting at some distance from the margin, the remaining venation obscure. Staminate spikes terminal and opposite the leaves, short peduncled or sessile, to 2.5 cm. long, about 1 mm. thick, the flowers not crowded, the pistillate flowers one or two at the base. Staminate flowers sessile, the bracts ovate, acute. Pistillate flowers sub-sessile, the styles stout, strongly recurved. Capsule 4 mm. long, the valves bearing a vertical row of three or more black, conical, acutish tubercles along the middle. Seed nearly 3 mm. long, oblong or oval, black, smooth, one end depressed and bearing a whitish stipitate membranaceous, circular discoid appendage with dentate margin.

"Four feet high, at Tumapasa, Bolivia, 1,800 feet, December 7, 1901." (R. S. Williams, No. 353.)

Euphorbia (Anisophyllum) sanmartensis.

Grayish-puberulent throughout. Stems elongated, slender, green, finely nerved, flexuous, prostrate or ascending, the branches similar. Stipules minute or obsolete. Petioles 1.5 mm. long and nearly as broad. Leaves opposite, those of the pair equal or sub-equal, the blades 6 to 12 mm. long and two-thirds or more as broad, inequilaterally oval with lightly cordate base and broad rounded summit, entire or obsoletely serrulate, slightly revolute, thickish, pale, densely pellucid-punctate, 3 (or occasionally 4 or 5) nerved, the venation obscure, mostly erect or strongly ascending. Involucres very shortly and stoutly

peduncled, solitary or 2 or 3 together in the axils, the bracts similar to the leaves, but spatulate and very unequal. Tube of the involucre campanulate, 1.5 or 2 mm. long, the lobes 4, reflexed, broadly ovate, short, the glands conspicuous, one or more of them petaloid, the petaloid appendages unequal, unguiculate, the limb oblique, broader than long. Stamens exserted, the anther-cells separated, globose. Pistil exserted, the ovary 3-costate and 3-nerved, the 3 styles shorter than the pilose ovary, distinct, 2-fid for about half of their length, erect or slightly spreading.

"Trailing to three feet and forming dense clumps. Sandy seashore at Playa Brava, February 9." (Herbert H. Smith, Colombia, No. 1919.)

Euphorbia (Anisophyllum) chiogenoides.

Minutely puberulent, the leaves finely papillose on both surfaces. Stems prostrate from a thick woody rhizome, the base more or less woody, much branched, the branches very slender, densely leafy, lightly angled. Stipules linear or narrowly subulate, connected by an interpetiolar line that sometimes bears one or more additional ligules. Petioles extremely short, flat, as broad as long. Blades 4 to 9 mm. long and a half or two-thirds as broad, oval, inequilateral with oblique subcordate base and blunt summit, thick, pale-green, obscurely pellucid-punctate, the reddish margin somewhat revolute, minutely serrulate, 2 or more nerves erect from the base of the midrib and one or more secondaries of similar character. Involucre subsessile, one or two together in the axils, the tube campanulate, 1.5 to 2 mm. long, thick, the 4 lobes much shorter, triangular-ovate, acute, more or less lacerate, recurved. Petaloid appendages reddish, very broad, very oblique, the summit emarginate. Anthers minute, the thecae separated, globose. Styles 3, distinct, shortly bifid.

"Prostrate, often 2 feet long. Common on open grassy lands (pampas) below 1,500 feet. I have not seen No. 1221 on these lands, though it occurs in clearings near them. Collected near Masinga, 250 feet, December 24, and August." (Herbert H. Smith, Colombia, No. 77.)

The same collected by Purdie.

Euphorbia (Dichilium) subtrifoliata.

Glabrate or sparsely pilose, with spreading hairs. Branches erect, elongated, very slender, sulcate, pale-green. Interpetiolar stipules inconspicuous. Petioles opposite or 3-verticillate, to 3 cm. or more long, filiform, divaricate. Blades 2.5 to 6 cm. long, 1 to 2.5 cm. broad, ovate, with very shortly and broadly cuneate base and obtuse but minutely apiculate summit, entire,

extremely thin, bright-green, minutely pilose, the secondaries about 8 or 9 on a side, very slender, crooked, widely spreading, mostly forked at about the middle. Involucres on elongated filiform peduncles, the tube green, about 1.5 mm. long and broad, turbinate-campanulate, the lobes very small, obscure, the petaloid appendages 4, sub-equal, oval or obovate, finely nerved, more or less bifid. Stamens exceeded by the erect petaloid appendages, the globose anther-cells separated. Pistillate flower long exserted, the peduncle very slender. Ovary obovoid, the summit depressed, the styles stout, distinct, parted to the base. Capsule 2 or 3 mm. long, the seed black, strongly longitudinally mammillose-tuberculate.

"Suffruticose, 4 to 6 feet, erect-branching. Common locally in dry forest and clearings below 500 feet, September to November, or later. Collected in dry forest in low hills 8 miles east of Cienaga, 300 feet, September 11." (Herbert H. Smith, Colombia, No. 359.)

Ilex imbricata.

Branchlets roughened with coarse trichomes, which are scale-like at the base and terminating in coarse hairs. Branchlets numerous, angled, densely leafy. Petioles 3 mm. long, broad, channelled above, the blades 1 to 1.5 cm. long, and nearly as broad, elliptical-oval to rotund, thick and coriaceous, the margin revolute, distantly and lightly dentate, the venation lightly impressed above, lightly prominent beneath, coarsely reticulate. Stipules and bracts subulate, very small. Flowers solitary or two or three on the peduncle, the pedicels about as long as the petioles, thickened toward the summit. Calyx 2 mm. wide, crateriform, the sepals ovate, acute or obtuse. Corolla about twice the length of the sepals, the lobes rounded, and a little longer than the stamens, the anthers as broad or broader than long. Ovary ovoid, as long as the calyx, the stigma capitate, sessile, very large. Fruit globose, venose, 4 or 5 mm. broad, 2-sulcate, tipped by the very short broad stigma.

"A tree of 3 m. at Unduavi, Bolivia, 3,300 M. altitude, November, 1910. (Otto Buchtein, No. 2934.)

Salacea sphaerocarpa.

Glabrous, the branchlets stout, terete, leafy. Petioles about 6 mm. long, stout, grooved above, more or less scurfy. Blades 10 to 15 cm. long, 5 to 7 cm. broad, lance-oblong with abruptly and very shortly cuneate base and abruptly acuminate and obtusish summit, entire, thin, bright-green, the midrib prominent on both surfaces, the venation depressed above and prominent beneath, the principal secondaries 10 to 12 on each side, very strongly falcate and scarcely connecting at the mar-

gin. Axillary peduncles short, more or less angled toward the summit, few flowered, the bracts small, broadly ovate, acute. Only young buds and fruits seen, the fruits (mature?) globose, 6 mm. broad, green.

Sacupana, Lower Orinoco, Venezuela, April. (Rusby and Squires, Nos. 247 and 416.)

Salacea mucronata

Glabrous, the slender, terete, recurved, grayish branchlets finely tuberculate. Petioles 5 to 8 mm. long, stout, channelled above, the blades 4 to 8 cm. long, 2 to 4 cm. wide, obovate with cuneate base and rounded and slightly mucronate, occasionally retuse summit, the margin entire and sharply revolute, thickish, the principal secondaries about 8 or 9 on each side, slender, spreading and anastomosing close to the margin, the fine venation coarsely reticulate. Cymes subsessile, much bifurcating, the grayish-brown branchlets enlarging toward the summit, the divaricate bracts thickish, triangular-ovate, acute, strongly concave, about 2 mm. long. Flowers very shortly and stoutly pedicelled, the globose buds 1 to 1.5 mm. broad. Expanded calyx 3 mm. broad, fleshy, the margin sinuate. Petals more than twice the length of the calyx, somewhat fleshy, sub-rotund. Disk annular, prominent, fleshy, sub-entire. Anthers 3, very small, equaling the stigma, the filaments about 1 mm. long, stoutish, sigmoid-curved. Fruit not seen.

Forests of the Lower Orinoco River, near Santa Catalina, Venezuela. (Rusby and Squires, No. 130.)

Salacea catalinensis.

Veins of the lower leaf-surfaces, younger portions and inflorescence gray-puberulent. Branchlets stoutish, terete, purple, finely striate. Petioles 5 or 6 mm. long, stout, divaricate or recurved, the blades 5 to 10 cm. long, 3 to 5 cm. broad, with rounded base and shortly and broadly mucronate and obtusish summit, thick, very pale, especially underneath, the venation impressed above, sharply prominent on the lower grayish surface, the principal secondaries 4 to 6 on each side, strongly falcately ascending and strongly inter-arching a short distance from the margin, connected by the tertiaries. Peduncles in the upper axils and terminal, mostly shorter than their leaves, spreading, more or less angled and finely striate, successively dichotomous. Bracts rigid, ovate and concave, acute, the bractlets similar but smaller. Pedicels short, slender. Flower about 13 mm. broad, the calyx two-thirds the breadth of the green corolla, shallowly lobed, the lobes rounded with minutely laciniate margins. Petals spatulate, 6 mm. broad, the margin lightly lacerate. Disk 6 or 7 mm. broad, circular, brown, entire, lightly convex, the margin lightly upcurved. Filaments

reaching about half-way to the margin of the disk, the anther nearly twice as broad as long. Stigmas nearly equaling the filaments, the styles broad, subulate.

Santa Catalina, lower Orinoco, Venezuela, May, 1906. (Rusby and Squires, No. 420.)

Hippocratea foliosa.

Younger portions and inflorescence finely puberulent, the leaf-surfaces finely papillose. Branchlets stout, terete, finely nerved, dark-purple, very leafy, the internodes 4 or 5 cm. long. Petioles about 1 cm. long, stout, sub-terete from widely spreading to slightly reflexed. Blades 5 to 10 cm. long, 2 to 5 cm. broad, oblong or oval, with rounded base and an abrupt, short, broad obtuse cusp at the summit, entire, thick, very pale-green, the finely and strongly reticulate venation prominent beneath, slightly so above, the secondaries 5 on each side, strongly ascending and anastomosing near the margin. Cymes axillary and terminal, the latter more or less paniculate, the former shorter or longer than their leaves, stoutly peduncled, mostly ascending, occasionally recurved. Flowers shortly pedicelled, 1 cm. broad, the sepals 2.5 mm. long, 3 mm. broad, ovate with rounded summit. Petals imbricate, sub-orbicular, 3 mm. long, the margin erose or crenulate. Disk 6 mm. broad, lightly convex, spongy, brown, and with a narrow, whitish, membranaceous margin, adnate to ovary and base of filaments. Stamens 3, the subulate filaments a little exceeding the style, the stigma of which is entire. Anthers 4-celled.

"A vine, to 40 feet, occasional in dry forest below 1500 feet generally on river banks. Flowers in August and again in November. Specimens from near Bonda, August." (Herbert H. Smith, Colombia, No. 893.) No. 894, from Masinga Vieja, 800 feet, is the same. It has young fruits, which are dark purple, obovate with truncate or lightly emarginate summit.

Rhamnus atroviridis.

Branchlets, lower leaf-surfaces and inflorescence finely tomentellate and more or less ferruginous. Branchlets short, erect-spreading. Petioles 4 to 8 mm. long stout, the blades 3 to 6 cm. long by 1.5 to 3 cm. broad, oval or oblanceolate, with rounded base and cuspidate acute summit, minutely serrulate, thick, dark-green above, yellowish beneath, finely reticulate, the principal veins impressed above, all prominent underneath. Flowers from solitary to five or six in the axils, the fascicles short-peduncled, the pedicels unequal, mostly recurved. Flowers about 3 mm. long and broad, the calyx tube nearly hemispherical, the teeth broadly triangular-ovate, acute, erect, about as long as the tube. Petals apparently wanting. Sta-

mens small, about two-thirds the length of the calyx-lobes. Style short, stout,

"A shrub 4 to 5 feet high, moderately common on open land, top of San Lorenzo Ridge, 7000 to 7500 feet, February 27, the plants then going out of flower." (Herbert H. Smith, Colombia, No. 1701.) No. 2758 is the same.

Gaya rubricaulis.

Yellowish gray-tomentellate throughout. Stems nearly a meter high, slender, erect, terete, branched at the top, the branchlets slender, sub-erect. Petioles 6 to 10 mm. long, the stipules 3 mm. long and broad, triangular, acuminate, persistent. Blades 2 to 4 cm. long, 1.5 to 2.5 cm. wide, abruptly deflexed, ovate with cordate base, the lobes rounded, and obtusish summit, unequally and irregularly crenate-dentate, the teeth and sinuses mostly obtuse, thickish, the venation slightly impressed above, prominent beneath, 2 or 3 pair of secondaries radiating from the base, one or two above on each side, connected by a coarse reticulation. Peduncles axillary, in fruit 2 cm. long. Fruiting calyx 2 cm. broad, lobed about half-way, the lobes broader than long, widely spreading, mucronate, the point erect. Persistent central carpel-tube 3 mm. high, 5 mm. broad, campanulate, many nerved, the nerves terminating in short erect teeth. Petals nearly 2 cm. long, unguiculate, broad, very thin and hyaline, finely nerved. Stamens 7 or 8 mm. long, the free portion of the filaments nearly as long as the united portion. Styles a little longer than the stamen-tube. Fruit 10 to 12 mm. broad, 5 mm. high, the central cavity enclosed by the carpel-tube, the apical filaments of the latter attached to the summit of the carpels. Base of carpel 8 mm. broad, the lower margin slightly indented, the upper portion strongly incurved, obtuse. Seed about 1.5 mm. long and broad, its inner margin about 1 mm. from the margin of the carpel.

Specimen unique, collected in Bolivia by M. Bang, probably near Cochabamba, without number.

Malvastrum micranthum.

Grayish-pubescent. Stems 3 dm. or more high, erect or ascending with spreading branches, stout, coarsely angled, sparingly leafy. Stipules 6 or 7 mm. long, lance-linear, acuminate, thin, brownish, strongly nerved. Petioles sometimes exceeding 5 cm. in length, stoutish, sulcate. Blades 2 to 4 cm. long, the breadth about the same, or a little greater, triangular-ovate with truncate or slightly cordate broad base and rounded summit, 3-lobed, mostly about half-way, the lobes irregularly and rather coarsely crenate-dentate, the teeth mostly about as broad as long, obtuse, the sinuses acute; thick, drying yellow-

ish, the pubescence rather sparse, the venation prominent on both sides, especially beneath where the principal veins are very strong. Inflorescence densely aggregated at the ends, the raceme at length elongating, in fruit becoming 6 or 7 cm. long, inclusive of the peduncle, which is a half or two-thirds of the length, erect-spreading, the fruits crowded, nearly sessile, the bracts narrowly linear, bright-green, serrulate, as long as the calyx, which in flower is 6 mm. high, lobed about half-way, the lobes triangular-ovate, acute, sub-hyaline with a strong green midrib and two fine green nerves. Corolla 6 mm. broad. Stamens equaling the 10 slender styles, with large stigmas. Ovary 2.5 mm. broad, depressed-globose, yellow, densely tomentose. Calyx enlarged in fruit, the lobes 6 mm. long, curved over the capsule, which is 6 mm. broad, the 10 carpels subtended by a 10 or 12 toothed circular disk. Carpels 2 mm. high and a little broader, deeply emarginate on the inner side, densely and coarsely white-pilose, the solitary brown seed of the same form, deeply sulcate on the back, the embryo with a well-formed plumule.

La Paz, Bolivia, 3,700 meters altitude, April 1910. (Otto Buchtien, No. 2893.)

Ayenia acuminata.

Stems, etc., lightly strigose, stems and branches slender, erect or ascending, 2 to 4 dm. high, the internodes about as long as the petioles, which are 1 to 1.5 cm. long and very slender. Stipules subulate and attenuate, about 2 mm. long. Blades 2 to 5 cm. long, 1 to 2 cm. broad, ovate with rounded base and regularly acuminate and acute summit, ciliate and serrate-dentate with short and broad acutish teeth; glabrous above except for some scattered hairs upon the midrib, the lower surface with similar scattered hairs, 5-costate from the summit of the petiole, the two lateral pairs short. Fascicles mostly 5-flowered, the pedicels very slender, reflexed, up to 6 mm. long. Calyx 1.5 mm. long, the lobes ovate, mucronate. Claws of the petals filiform, nearly twice the length of the calyx, the limb glandular on the back. Gonophore slightly exceeding the calyx in flower, twice as long in fruit, stout. Gonophore short, much elongating in fruit. Fruit about 3 mm. long, a little broader, densely muricate, the projections long-acuminate.

"Occasional in clearings and waste ground below 2,500 feet, generally in shade. Root often stout and 6 inches or more long. Collected at Bonda, 150 feet, July-August." (Herbert Smith, Colombia, No. 358.)

Sterculia laxiflora.

Mature foliage glabrous, the younger growth not seen, the inflorescence and flowers densely yellowish-gray-tomentellate.

Petioles stout, the blades palmate, the five leaflets twenty to thirty cm. long and eight to twelve cm. broad, oblanceolate with cuneate base and rounded summit, the bases, after narrowing, abruptly dilated and confluent; deep-green above, yellowish-green beneath, the slender venation prominent on both sides, much more so beneath, the secondaries about twenty on each side, spreading widely and strongly falcate-ascending at the ends, where they are more or less connected at or very close to the margin, the venation finely reticulate. Panicle axillary, solitary, elongated, 15 to 20 cm. long, very loosely flowered, the rachis sulcate, the pedicels 6 to 8 mm. long, slender. Calyx nearly 2 cm. long, campanulate, five-lobed a third of the way, the lobes ovate and acute. Essential organs slightly exserted, about 5 mm. long, the fifteen anthers about 1½ mm. long, arranged in an irregular circle at the base of the pistils, oval, curved, of unequal size, sessile. Pistils five, distinct, about 3 mm. long, the ovaries lanceolate and acuminate, the styles slender, the summits mostly reflexed, the stigmas small, peltate.

Collected by Miguel Bang in Bolivia, without number, locality or date.

Saurauja brevipes.

The stout branchlets and inflorescence, including the calyx, more or less clothed with coarse hairs which are dilated or squamiform at the base. Similar but smaller and deciduous hairs on both leaf-surfaces, borne on minute papillae. Leaves 10–20 cm. long, inclusive of the petiole, 2.5 to 5 cm. broad, oblanceolate, the cuneate base tapering regularly into the short petiole, acute, or very shortly acuminate, deep-green above, yellowish underneath, minutely and unequally dentate-serrate, thickish, scabrous above. the principal veins 14–18 pairs, whitish, upcurved, faintly anastomosing at the margin, connected by faint secondaries. Panicles sessile or sub-sessile, mostly terminal, 7–10 cm. long and broad, the branchlets subulate-bracted at the base. Pedicels extremely short, subulate-bracted, the flowers 5–7 mm. broad. Sepals 5 mm. broad, sub-rotund, thin and translucent, nearly distinct, narrowed at the base. Petals similar, about a half longer than the sepals. Filaments longer than the anthers, tapering strongly upward, the anther-cells separating widely at the base, opening by pores. Styles three, stout, separate to the base.

Species near *S. scabra.*

Collected in Bolivia by M. Bang, but locality not specified and specimen without number.

Saurauja Herbert-Smithii.

Sparsely pilose, the hairs short, stout and mostly falcate. Branchlets slender, striate, leafy. Petioles 3 to 5 cm. long,

slender, narrowly grooved. Blades 10 to 13 cm. long, 4 to 5 cm. broad, obovate, with acute base and a very abrupt, short, narrow and acute point at the summit, thin, lightly and unequally serrulate, some of the teeth rounded and some minutely pointed, above deep-green and sub-glabrous, with the venation slightly prominent, underneath pale, pilose on the veins and becoming nearly glabrous, the venation prominent, the principal secondaries about 8 on a side, strongly falcate near the midrib, then strongly ascending and disappearing in the margin, connected by very numerous straightish tertiaries. Panicles long-peduncled, short and broad, densely flowered, the bracts small, linear, or lance-linear, the flowers mostly short-pedicelled, the pedicels slender, the inflorescence short-pilose and scurfy, slightly ferruginous. Flower 1 cm. broad, the sepals and petals sub-rotund, the sepals about half the length of the petals. Stamens numerous, the longer about equaling the petals. Ovary globoidal, about 1 mm. long, lightly 4-grooved, the styles 4, distinct, much longer than the stamens.

"A forest tree at Calagualita, 1500 feet, May." (Herbert H. Smith, Colombia, No. 857.)

Species near *S. pedunculata* H. B. K.

Clusia oblanceolata.

Glabrous, the branchlets stout, angled, brown, rough with leaf-scars. Leaves 15 to 20 cm. long, 3 to 4 cm. broad, the petioles only about 2 mm. long, 3 mm. broad, the base of the oblanceolate blade narrow and cordate, the summit abruptly short-pointed and obtuse, the margin entire, thinly revolute, brownish, the midrib prominent on both surfaces, deep-brown underneath, the secondaries very numerous, slender, parallel, slightly falcately ascending, the texture thickish and coriaceous. Raceme terminal, strongly peduncled, few flowered. Only pistillate flowers seen. These long and stoutly pedicelled, 3 or 4 cm. broad. Bracts 2, rotund, about 12 mm. long. Petals and sepals similar, the petals narrower, obovate with narrowed base, nearly 2 cm. long. Staminodia numerous, distinct, tortuous and somewhat matted, less than half the length of the petals, some bearing small rudimentary 2-celled anthers. Stigmas 5, very large, obovate with narrowed base, reflexed over the staminodia and partly concealing them, coarsely and unequally lobed and lacerate at the summit.

"A tree to 35 or 40 feet, common in mountain forest, 5,000 to 6500 feet. Collected about Valparaiso, 5500 feet, March 20." (Herbert H. Smith, Colombia, No. 1880.)

"Clusia elongata Rusby" Bull. N. Y. Bot. Gard., **28**: 105.

A further study of this plant, in connection with that described next below, leaves me very doubtful about its affinity

with Clusia. It has 6 to 7 or 8 ovarian cells, each containing a number of horizontal pendulous ovules, and the plant has all the habit of Clusia, but the carpels taper into triangular-lanceolate styles with terminal, peltate, concave stigmas, the styles in the young fruit state becoming erect or sub-erect. It can belong to no other described genus than Clusia, but I believe it to be distinct from that. In the absence of flowers, I can do no more than suggest this view. All the above remarks apply to the following.

Clusia (?) ternstroemioides.

Glabrous, the branchlets short, stout but weak, recurved, leafy at the summit. Leaves 4 to 6 cm. long, 2 to 5 cm. broad, oblanceolate, tapering into a very short winged and lightly keeled petiole and with rounded summit, thick and coriaceous, the midrib and about twenty pairs of secondaries sharply prominent beneath, very slightly so above. Young fruits few, sessile at the summit. Sepals sub-rotund, broader than long, appressed, fleshy with hyaline margin. Ovary about as broad as long, sharply angled. Styles flat and fleshy, lanceolate, at first reflexed upon the ovary, becoming erect and twisted, the stigmas terminal, concave or 2-pitted.

"A shrub 6 to 8 feet high; Tolapampa, Bolivia, 10,000 feet, September 25, 1902. (R. S. Williams, 1543.)"

Vismia falcata Rusby.

Upper leaf-surfaces glabrous, drying brown, the lower sparingly and very finely ferruginous-puberulent, this covering increasing in coarseness and density up the branchlets, through the inflorescence and upon the calyx. Branchlets slender, terete. Petioles about 2 cm. long, the blades 12 to 18 cm. long by 3.5 to 4.5 cm. wide, lanceolate with sub-rounded, slightly inaequilateral base and long-acuminate and acute summit, slightly falcate, entire, thickish, the venation sharply prominent underneath, faintly so above, finely reticulate, the principal veins about 18 pairs, ascending at an angle of about 45 degrees and curving to nearly erect near the margin. Panicle sessile, short, broad and rather few-flowered. Pedicels very short and stout. Sepals 7 mm. long by 5 mm. broad, oval, obtuse, very thick, strongly 2–3-ribbed in the dry state. Petals and stamens wanting in my specimen. Young fruit blackish, globose, tipped by five long stout styles which are distinct to the base and bear large stigmas. Seeds numerous.

Collected by Rusby and Squires at Santa Catalina on the lower Orinoco in May, 1896. (No. 142.)

Vismia angustifolia.

Closely and rather sparsely ferruginous-pubescent. Branchlets slender, terete, the internodes about 3 cm. long. Petioles

about 1.5 cm. long, slender, striate, the blades 8 to 12 cm. long, 2 to 3 cm. broad, regularly lanceolate with obtuse base and acuminate and acute summit, entire, thin, deep-green above, ferruginous beneath, where the slender venation is prominent, the secondaries about 14 on each side, widely spreading and lightly falcate. Flowers few on my specimen, terminal, the bractlets of the panicle very small. Pedicels sharply angled, short, unequal. Sepals 6 mm. long and two-thirds as broad, ovate, lightly striate, the broad middle portion ferruginous, the rather broad purple margins glabrous. Petals a half longer than the sepals, purple, densely long pilose within. Stamens numerous, the phalanx stoutly stipitate, about 5 mm. long, the free portions of the filaments short. Styles half the length of the ovary, distinct, slender, the stigmas large, white-pubescent.

Sacupana, Venezuela, April, 1896. (Rusby and Squires, No. 141.)

Calceolaria hirsuta.

Densely long-pilose throughout. Branches ascending from a decumbent, apparently woody base, 4 dm. or more high, slender, sparingly branched, terete, striate. Stipules 5 to 7 mm. long, lanceolate, obtuse, striate. Leaves to 4 cm. long and 2 cm. wide, the lower and upper smaller, obovate, contracted at the base into a very short petiole, mostly obtuse, thin, yellowish-gray-green, the venation not prominent, the secondaries, about 5 on a side, strongly ascending, the margin serrate with obtuse teeth and acute sinuses. Flowers several, in a terminal but apparently lateral fascicle, but only the fruits present in my specimen. Fruiting calyx to 1 cm. long, the lobes somewhat unequal, lance-ovate, long-acuminate, the margin bearing several linear teeth. Vestiges of the somewhat persistent petals remaining. Capsule a half or two-thirds the length of the calyx. Seed spheroidal, somewhat compressed, whitish, smooth.

"Rare in sheltered places at the base of rocks, under bushes, etc. On open grassy hillsides, 4 miles northeast of Masinga, 500 feet, November 8. Not observed elsewhere. Flowers whitish or cream-colored." (Herbert H. Smith, Colombia, No. 2018.)

Species near *C. Poayia* (St. Hil.) O. Kuntze.

Calceolaria curvirostra.

Finely puberulent. Stems erect, stoutish, terete, leafy. Stipules 3 to 4 mm. long, ovate, acute. Petioles 3 or 4 mm. long, stout. Blades to 1 dm. long and 3 cm. wide, the lower smaller, lanceolate with acute base and abruptly acuminate summit, the acumination rather long and narrow; thickish,

deep-green above, grayish-green beneath, obsoletely serrate, the teeth few and very small, the venation prominent beneath, the secondaries about 8 on a side, strongly ascending, connected by numerous crooked tertiaries. Flowers solitary in the axils, the peduncles 7 or 8 mm. long, erect, articulated to the calyx, subtended by 2 pairs of whitish cartilaginous, ovate acute bracts. Sepals 5, unequal, ovate, obtuse, herbaceous, thin, strigose, the lateral 9 or 10 mm. long, the others shorter and broader. Lower petal 15 mm. long, saccate at the base, longitudinally folded and slightly narrowed upward, falcately curved so as to form a long stout beak. Lateral petals 1 cm. long, 4.5 mm. broad at the base, ovate, obtuse, the 2 upper of the same length, long-unguiculate, the oval limb about twice the width of the claw. Stamens sessile, 8 mm. long, the erect membranous appendages nearly as long as the anthers, obtuse. Two of the anthers spurred, the spur 3 mm. long, blue, obtuse, nearly straight. Ovary ovoid, obtuse, 3 mm. long, the stout style 4 mm. long, incurved, blunt or sub-truncate. "A small tree to 15 feet, in low damp forest, one mile from the coast, Don Diego, May 8." (Herbert H. Smith, Colombia, No. 2731.)

7 Rinorea (?) dichotoma.

Glabrous. Arborescent, the branchlets slender, flexuous, terete. Petioles 4 or 5 mm. long, stout, narrowly margined, the blades 8 to 14 cm. long, 4 to 5 cm. broad, lanceolate with obtuse base and acuminate obtusish summit, obsoletely serrate, thickish and rigid, bright-green, the very slender venation sharply prominent underneath. Inflorescence once or usually twice dichotomous, the common peduncle stout, 3 to 5 mm. long, bearing one or more short, broadly ovate, acutish, thick and rigid bracts, its branches similarly bracted, gradually elongating as the flowers fall and leave crowded persistent stipes of the pedicels, these stipes short and stout and terminating in a brownish annulus or disk which is somewhat accrescent and at length nearly twice as broad as its stipe. Pedicels about 1 cm. long, slender, slightly thickened above, minutely pappillose, articulated to their stipes. Flowers about 8 mm. long. Calyx open, the 5 sepals imbricate, broad and sub-rotund, the inner somewhat larger. Corolla imbricate, the 5 petals erect, lanceolate, obtuse, thickish. Stamens 5, alternating with the petals, distinct, about half the length of the petals, the filaments longer than the anthers, broad, with pale margins, slightly narrowed above, the anthers ovate, mucronate, the tip whitish. Style nearly equalling the corolla, filiform, the lower portion persistent, the ovary ovoid. Stigma terminal, minute. Young fruit obovoid.

"Collected above Valparaiso, 5,000 feet." (Herbert H. Smith, Colombia, No. 1492.)

In its peculiar inflorescence characters as well as in those of the stamens, this plant appears to represent a distinct genus, but in the absence of fruit, it is tentatively referred to *Rinorea*.

Mr. Smith sends another specimen under the same number from the same region, February 25, of which he says: "A tree to 40 feet, common locally in mountain forest, 4000 to 5500 feet. Flowers white." This specimen has leaves little more than half as large, closer together and drying of a pale green and the flowers are smaller.

Hasseltia lateriflora.

Young petioles, etc., sparsely puberulent, with yellowish hairs. Branchlets stout, terete, whitish or pale, very leafy. Petioles 2 cm. or less long, rather stout, sub-terete, dilated at both ends, 2-glandular at the summit. Blades 9 to 15 cm. long, 3 to 6 cm. broad, oblong or oval, with rounded base and an abrupt and very short blunt point, thick, entire, 3-nerved, the lateral pair starting from the petiole and running near the margin for a little more than half the length, the secondaries 3 or 4 on each side, strongly ascending and strongly anastomosing, the venation coarsely anastomosing, prominent on both sides, only slightly so above, where the midrib is slightly grooved. Panicles lateral, in flower, less than half the length of their leaves and shorter than the leaves when in fruit, short-pedunculed, loosely and slenderly branched, the branches striate or lightly angled, the bracts and bractlets very small, the pedicels slender. Calyx lobed nearly to the base, the lobes 4 mm. long, lanceolate, blunt. Petals resembling the sepals and a little exceeding them. Stamens very numerous, persistent.

"A tree, to 60 feet, in mountain forest, 4000 to 6000 feet. Collected on Sierra del Libano, 6000 feet, January 21." (Herbert H. Smith, No. 1915.)

A specimen collected by Traill, on the Purus, is very similar, if not identical as to species.

Casearia (Pitumba) onacaensis.

Inflorescence minutely puberulent. Branchlets slender, terete, purplish, the internodes about 1.5 cm. long. Petioles 6 mm. long. Blades 4 to 8 cm. long, 1.5 to 2 cm. broad, lanceolate with inequilateral acute base and somewhat abruptly acuminate and obtusish summit, obsoletely serrate, the margin minutely indented, thick, deep-green, minutely pellucid-punctate, the strong venation prominent on both surfaces, especially beneath, the secondaries 5 or 6 on a side, strongly falcate-ascending, scarcely connecting, the venaion finely reticulate. Fascicles nearly circular as pressed, about 1 cm. broad. Pedicels

3 mm. long, slender, the bases minutely bracted, the bracts brown. Sepals 2 mm. long, sub-rotund, black-dotted within. Stamens 12, slightly connate at the base, nearly as long as the sepals, the staminodia very broad, half the length of the stamens, pilose. Ovary short-ovoid, the style short and thick, the stigmas 3, large, connate at the base.

"A tree, probably from Onaca, about 2500 feet, December." (Herbert H. Smith, Colombia, No. 906.)

Species very similar to No. 1768, but the slender, somewhat 3-fid style of the latter marks it as distinct and in a different section.

Casearia (§ **Crateria**) **chlorophoroidea.**

Glabrous except the minutely puberulent pedicels. Branches slender, terete, deep-purple, the internodes 2.5 cm. long. Petioles 8 to 10 mm. long, stout, deep-purple. Blades 7 to 12 cm. long, 3 to 4 cm. broad, oblong, varying to lanceolate or oblanceolate with the base very abruptly contracted into the petiole and with a very abruptly acuminate obtuse summit, the acumination a ninth or an eighth the total length; margin obscurely indented, thin, deep-green, strongly pellucid-punctate, the spots elongated, the venation lightly prominent on both surfaces, more so beneath, where the purple midrib is very strong, the secondaries about 8 on a side, with occasional fainter ones, spreading, then strongly ascending, obscurely connected at the margin, the venation finely and strongly anastomosing. Fascicles about 2 cm. broad, densely very many-flowered, the pedicels 4 to 6 mm. long, slender, bracted at the base, the bracts very minute, brown. Sepals 1.5 mm. long, oval, obtuse. Stamens 10, nearly as long as the sepals, the staminodia nearly as long as the filaments, pilose. Ovary large, obliquely ovoid, tuberculate, the style slender, more than a third the length of the ovary, trifid, the branches strongly recurved, stout, the stigmas small.

"A riverside tree, near Calacasa, 1000 feet, May 18." (Herbert H. Smith, Colombia, No. 800.)

Specimen very near No. 1768, but the leaf-dots different and the ovary and stigmas quite distinct.

Casearia (§ **Crateria**) **Herbert-Smithii.**

Inflorescence grayish-puberulent. Branches elongated, slender, the internodes about 2 cm. long. Petioles 6 to 8 mm. long, stout, purple, the blades 6 to 12 cm. long, 2.5 to 3.5 cm. broad, lanceolate and mostly somewhat inequilateral at the acutish or obtusish base, and abruptly acuminate and obtuse at the summit, the acumination about one-eighth or one-ninth of the

total length; entire, thickish, deep-green, pellucid-punctate, the venation prominent beneath, lightly so above, the secondaries 7 or 8 on each side with several lesser intermediates, strongly falcate-ascending, obscurely connecting near the margin, the venation finely and strongly anastomosing. Fascicles nearly circular as pressed, 10 or 12 mm. broad, densely many flowered. Pedicels about 3 mm. long, mostly 3 together, with their bases enclosed in three minute, hyaline, broadly oval obtuse scales. Sepals 2 mm. long and broad, sub-rotund, thickish, white with purple spots on the inner surface, minutely ciliate, connate at the base. Stamens 10, adnate to the base of the calyx, distinct, nearly as long as the sepals, the filaments stout, pilose, the anthers small, as broad or broader than long. Staminodia broad, half as long as the stamens. Pistil equaling the stamens, the ovary broadly ovoid, the style slender, the stigmas large, on short style-branches.

"A tree, 15 to 20 feet, in dry forests and thickets near Minca, 2000 feet, July 5. Dots on leaves, much more apparent than in 416 and branchlets smooth." (Herbert H. Smith, Colombia, No. 1768.)

Begonia Unduavensis.

Sparsely pilose. Stems slender, widely branching, apparently reclining or decumbent, sharply costate and deeply sulcate. Stipules 1.5 cm. long, ovate acuminate, brown, scarious, with a strong midrib. Petioles about 2 cm. long, slender and weak, the blades thin, 3 to 7 cm. long, from the summit of the petiole, the rounded base on one side descending about 1 cm. lower, ovate, slenderly acuminate and acute, highly inequilateral, the margin of the smaller side forming an almost regularly continuous curve with the base of the other, and much less serrate than the other side, which is coarsely serrate-dentate, the teeth very finely serrate, all the teeth acute, the larger side with two ribs starting from the base and one from the midrib near the base. Cyme few flowered, the branches slender, mostly elongated and spreading laterally, the bracts 5 or 6 mm. long, scarious, brown, oblong or oval, blunt or minutely mucronate. Pedicels 1.5 cm. long in flower, twice as long in fruit, slender.

Staminate flowers: Perigone segments 2, unequal, the larger more than 1 cm. long, nearly 2 cm. broad, the margin rounded, the smaller about two-thirds as large. Stamens very numerous, distinct, 4 mm.l ong, very slender, the filament a little longer than the anther, which is oblong-lanceolate, the connective dark-brown and continued into a rounded, thick appendage nearly as broad as the anther.

Pistillate flowers: Perigone segments 6, similar and equal, 12–15 mm. long and half as broad, obovate with rounded sum-

mit, reticulate-veined. Body of ovary broadly oval, 5 mm. long, half as broad as the larger wing, which is nearly at a right angle, and ovate with rounded summit. Styles 6, distinct, bifid nearly to the base, the branches again bifid and each branch bearing two or three capitate stigmas. Body of capsule 12 mm. long, broadly oval, the smaller wing narrow, little broadened upward, very veiny, the larger 3 cm. long, slightly ascending, ovate with rounded summit, the upper margin nearly straight, the lower slightly descending with regular curve near the base, strongly nerved, the nerves branching, the branches erect, crooked.

The type is the pistillate plant, collected by H. H. Rusby at Unduavi, Bolivia, 8000 feet, October 1885 (No. 677). The staminate plant is unique, collected by Mr. Bang in Bolivia, without number or data.

Begonia lignosa.

Younger portions and veins of lower leaf-surfaces pilose, and upper leaf-surfaces lepidote. Stems stout, somewhat woody, purple-brown, many-sulcate, the branchlets short and strongly ascending. Stipules about 2 cm. long, lance-ovate, acuminate and acute, the tips attenuate, scarious, brown, 3-nerved. Petioles 1 to 2 cm. long, broadly channelled above, sparsely ciliate. Midrib of blades 4 to 6 cm. long, the blade 2 to 3 cm. wide, obliquely ovate, the base on one side descending to form a broad rounded auricle, the summit acute, the margins doubly serrate, the teeth ciliate, several strong, straight nerves radiating from the summit of the petiole and extending to the margin, the venation prominent underneath, very pilose, the hairs coarse and somewhat ferruginous. Cyme long and slenderly peduncled, widely and loosely branched, several-bracted at the points of branching, the bracts a little smaller than the stipules. Flowers very shortly pedicelled. Three inner petals larger, nearly 1 cm. long, broadly oval with rounded summits, thickish. Ovary 6 mm. long and about 8 mm. broad, winged. Styles 6, separate nearly or quite to the base, very stout, tough, flattened like their numerous lobes, which terminate in large capitate stigmas.

Capsule oval, 1 cm. long and nearly as broad, one wing only 2 mm. wide, the other two cm. wide and 13 mm. high, ovate, with rounded summit, its nerves nearly straight and parallel, the extremity only slightly higher than the top of the capsule.

Unduavi, South Yungas, Bolivia, Nov. 1910. (Otto Buchtien, No. 2899.)

Begonia oblanceolata.

Margins of leaves and stipules strongly ciliate, the upper leaf-surfaces green and lepidote, the lower brown, very minutely

and sparsely puberulent. Stems elongated, brown, angled or costate. Stipules 10 to 13 mm. long, ovate, scarious, brown, nerved, the deep-brown midrib terminating in a seta, the margin lacerate-ciliate, the hairs extending down upon the stem-joint. Petioles 6 mm. long, slender, the blades 7 to 10 cm. long, 1.5 to 2.5 cm. broad, lanceolate with obliquely rounded base and regularly acuminate and acute summit, the margin and surfaces as above described, extremely thin, sub-5-nerved by the two basal pairs of secondaries which are erect and run about two-thirds of the way to the summit. Pedicels filiform, those of the staminate flowers extremely slender.

Staminate Flowers.—Sepals 2, 1.5 cm. long, nearly 1 cm. broad, ovate, blunt, slightly cordate. Stamens 12, about 4 mm. long, the filaments filiform, about half as long as the anthers, which are lanceolate and minutely mucronate. Petals wanting.

Pistillate Flowers.—Pedicels stouter than those of the staminate flowers. Ovary obovoid, 14 mm. long, 9 mm. broad, one wing more than 2 cm. long and 14 mm. wide, obliquely ovate, obtuse, ascending to about the level of the summit of the petals, the other wing about half as large. Petals oblong, 14 mm. long. Styles 3, distinct, pubescent, trifid two-thirds of the way to the base, the branches clavate, about a third the length of the petals.

Antahuacana, Espirito Santo, near Cochabamba, Bolivia, 750 m., June 1909 (Buchtien, No. 2283).

Begonia heterodonta.

Sparsely pilose on both leaf-surfaces and the young branchlets with scattered stout tapering white hairs. Stems thickish but weak, nerved, pale-brown, leafy above. Stipules 1 cm. long, 3 or 4 mm. broad, lanceolate with attenuate summit, pale-brown, scarious, not early deciduous. Petioles 3 or 4 mm. long. Midrib of the blades 5 to 10 cm. long, the blade highly inequilateral, the larger side 2 to 4 cm. broad, its rounded base descending one or two cm. lower than the summit of the petiole, supported by four ribs which rise together with the midrib from the summit of the petiole; smaller side 1 to 2 cm. broad, its margin ascending from the summit of the petiole at an angle of about 65 degrees, supported by one or two nerves which rise from the midrib near its base; blade acuminate and acute, very thin, pale beneath, the margin very coarsely and unequally dentate, the large teeth serrate, with very unequal attenuate teeth, their points sub-setose. Flowers few, in a slenderly peduncled, loose and open terminal cyme, on filiform pedicels.

Staminate flower.—Perigone segments 2, ovate, twice as long as the stamens, which are (always ?) 5 in number, the filaments united at the base, little longer than the nearly rotund anthers.

Pistillate flowers.—Body of ovary sub-rotund, 2 or 3 mm. broad, the narrow, scarious wing extended at the top on one side almost horizontally into a lanceolate obtuse process about as long as the ovary. Perigone segments apparently only 2, unguiculate, oblanceolate, obtuse, little longer than the styles, widely spreading. Styles 3, bifid almost to the base, the branches stout, very crooked. Immature pods with the body slenderly and crookedly 6-nerved on each side, the narrower wing about a third as wide and crossed by 6 strong nerves which anastomose at the thickened margin, the larger wing produced into a slightly ascending inequilaterally ovate process with rounded summit, and about 3 times as wide as the body, strongly and crookedly many-nerved.

"Common on rocks in damp shady places at 800–2000 feet, occasionally in deep glens as low as 400 feet. Specimen from Agua Dulce Road, about 1000 feet, Nov. 21." (Herbert H. Smith, Colombia, No. 1264.)

Begonia subcostata.

Glabrous, except for a few very small short and thick white spiculate hairs on the young leaves. Branches erect or strongly ascending from a creeping base, thick but weak, conspicuously (about 10) costate and sulcate, pale-brown, or slightly reddish, the internodes 4 to 6 cm. long. Stipules 3 mm. long, much broader, extremely thin, ovate, with rounded summit, very finely nerved. Petioles slender, erect, 2 to 4 cm. long, the blades 4 to 8 cm. broad, lance-ovate, very inequilateral, with rounded base and long-acuminate and attenuate summit, coarsely serrate-dentate, both teeth and sinuses short, broad and acute, the former bearing one or more small, secondary teeth; larger side of the blade with two ribs or strong nerves and a third lesser one at the base of the outer, the smaller side with a single straight nerve. Flowers few, on slender and weak short pedicels.

Staminate Flowers.—Sepals 2, from 8 to 10 mm. long, 12 to 15 mm. broad, with regularly rounded summit, very thin. Stamens about 20, on short, broad filaments distinct to the base, the anthers about 1.5 mm. long, obovoid, with a broad, rounded hyaline summit.

Pistillate Flowers.—Perigone segments 6, the two outer reddish, lanceolate, scarcely as long as the four inner, which are white, of about the same length as the ovary, and oblanceolate, with rounded summit. Ovary brown, triangulate with truncate summit, slightly longer than broad, ribbed and winged, one wing broader than the other. Styles 3, distinct, two-thirds the length of the petals, 2-fid nearly to the base, and bearing two wing-like appendages at the base of the branches, the latter stout, recurved and with capitate stigmas. Pod triangulate,

about 9 mm. long and broad, the obovoid body about half of the total width, one wing about twice as large as the other.

"Local and not common, on wet rocks by streams in forest and clearings, Las Nubes, 4,500 feet, December 15, (Herbert H. Smith, Colombia, No. 1265.)

Grislea compacta.

Inflorescence and petioles minutely and sparsely puberulent, the stems slender, slightly angled at the nodes, the internodes about 2.5 cm. long. Petioles 6 to 10 mm. long, slender, reddish, the blades lightly ascending, some of them lightly falcate, 6 to 12 cm. long, 12 to 25 mm. broad, oblong-lanceolate, regularly acuminate at both ends, acute, entire, thin, bright-green, the slender venation prominent underneath, the principal secondaries 10 or 12 on a side, strongly ascending, lightly connecting near the margin, the venation coarsely reticulate. Peduncles axillary, shorter than the petioles, stout, angled, dilated at both ends, mostly branched, the branches similar, the bracts lanceolate, acuminate, mostly shorter than the pedicels, which are 3 to 6 mm. long, slender. Flowers deep crimson. Calyx 7 mm. long and 5 mm. broad, the tube urceolate, abruptly contracted into the pedicel, striate, about four times the length of the broadly ovate obtusish lobes. Petals linear-oblanceolate, obtuse, about a third the length of the calyx. Exserted portion of stamens nearly as long as the calyx, the style very slightly exceeding them.

"A shrub, rare in thickets on rocky banks, generally near water, 500–2000 feet. Specimens collected at 1000 feet, June 6." (Herbert H. Smith, Colombia, No. 1875.)

Species very near *G. secunda*, H. B. K., also collected by Mr. Smith, and which he compares as follows: "Specimens collected from four or five plants are constant in the form of the leaf and in the somewhat low and compact habit, which is very different from the other."

The flowers are longer and more slender, and the leaf-form is quite different.

Ammania pedunculata.

Glabrous, the stems slender, erect, about 5 dm. high, simple or sparingly branched, the branches erect, the internodes about 2 to 4 cm. long, sharply quadrangular. Leaves almost divaricate, 3 to 6 cm. long, 4 to 8 mm. wide, the base clasping, its lobes short and broad, the summit acutish, the margin thinly revolute, the midrib stout and prominent beneath, rounded, the venation obscure, the principal secondaries numerous, nearly straight. Peduncles about 3 mm. long, mostly 3-flowered,

a pair of subulate bracts at the point of branching, the pedicels in fruit almost as long and 2-bracteolate at about the middle, the bracts scarcely a mm. long. Flowering calyx 5 mm. long and nearly as broad, campanulate with slightly contracted mouth, strongly 8-nerved, the teeth 8, triangular ovate, acute, short, slightly recurved. Petals 4, nearly rotund, purple, about twice as long as the calyx-teeth. Stamens 4, shorter than the stout style. Capsule sub-globose, 5 or 6 mm. in diameter.

"Erect, commonly without branches, 18 to 20 inches high. In swampy lands near Cienaga and not far from sea-level, September 10. Commonly in water of shallow pools and ditches." (Herbert H. Smith, Colombia, No. 548.)

Combretum, latipaniculatum.

Softly tomentose, the upper leaf-surfaces very sparsely so. Branchlets stout, terete, the internodes 2 to 4 cm. long. Petioles 1 cm. long, stout, terete, the blades 4 to 8 cm. long and nearly as broad, oval, the base lightly cordate with regularly rounded lobes, the summit rounded or minutely cuspidate, the margin entire, the venation lightly prominent on both surfaces, the secondaries 4 on each side, strongly falcately ascending. Panicles axillary, stoutly peduncled, diffusely branched, the racemes 5 to 7 cm. long, slender, loosely flowered, the 5-merous flowers closely sessile, the bracts lanceolate, acuminate, about as long as the ovary. Bud, just previous to expanding, 3.5 mm. long. Middle half of calyx-tube rather abruptly expanded, the limb, in flower, 2.5 mm. wide, crateriform, lobed about half way, the lobes obtuse. Petals pilose, their exserted portions about as long as the calyx-tube, long-clawed, oblanceolate. Stamens long-exserted.

"A twining vine, 25 to 30 feet, with woody stem 2 inches in diameter and armed at intervals of about 3 inches with solitary short, needle-like spines. An abundant watery sap runs from the stem when it is cut and this is sometimes used as an external application to sore eyes. Very rare in dry forest near sea-level. Collected 5 miles north of Bonda, 100 feet, March 18. Flowers white."

(Herbert H. Smith, Colombia, No. 2101.) This may be the same as that collected in fruit by Tonduz in Costa Rica (13503) and Spruce (6255).

Combretum multidiscum.

Minutely lepidote, the inflorescence golden yellow. Branchlets stout, sub-terete, the internodes 4 or 5 cm. long. Petioles 7 to 10 mm. long, stout channelled above, the blades 10 to 12

cm. long, 4 to 5 cm. broad, ovate, the rounded base slightly produced into the petiole, the summit acuminate, obtuse; entire, thin, the coarsely reticulate venation sharply prominent on the upper surface, the principal secondaries about 8 on each side, strongly falcately ascending. Spikes axillary or a few forming a loose terminal panicle, in the young bud state much shorter than the leaves, cylindrical and very densely flowered, the oblanceolate acute bracts much longer than the buds, the rachis very thick, strongly angled. Bud closely sessile, wholly yellow, the tube cylindrical, 1.5 mm. long, the head spherical, 1 mm. broad, the calyx-limb thick, 4-merous, pilose within. Petals not found, perhaps wanting. Spikes greatly elongating in fruit, the fruits densely arranged, on recurved pedicels about 2 mm. long, leaving the rachis sharply nodose after falling. Fruits 10 mm. long, 12 or 13 mm. broad, inclusive of the wings, which are about 2 mm. broad, irregularly and lightly crenate, both ends rounded or sub-truncate, the summit with a very short broad style-base, the color deep-brown.

"Collected near Masinga, 250 feet, February 6." (Herbert H. Smith, Colombia, No. 874.)

Combretum oblongifolium.

Glabrate, the branchlets elongated, slender, terete except above. Petioles about 3 mm. long, stout, the blades 5 to 10 cm. long, 3 to 5 cm. broad, oblong, varying to oblanceolate, rounded or minutely cordate at the base, and with an abrupt, very short broad point at the summit, entire, thin, the principal secondaries about 9 on each side, prominent on both surfaces, especially beneath, the venation finely reticulate, the upper surface somewhat shining. Panicles axillary and terminal, much exceeding their leaves, long-peduncled, the rachis strongly angled and sulcate, the spikes occasionally leafy-bracted at the base, short-peduncled, the peduncle and rachis angled, minutely ferruginous, 6 to 10 cm. long, rather loosely flowered. Flowers closely sessile, subulate bracted at the base, the slender summit of the bracts recurved, about two-thirds the length of the calyx-tube, the latter 2 mm. long, angled, little contracted at the base, the upper third gradually contracted to the base of the limb, which is urceolate in the bud, when expanded campanulate, 2 mm. broad and not quite so long, the teeth very short and broad. Petals reflexed, almost semicircular, 2 mm. broad, the margin entire. Stamens and style about equal, about twice the length of the calyx-limb or a little more, the anther very small, triangular-ovoid. Fruit described below.

"A high scandent shrub in forest, Calavasa, 600 feet, December 28. A series of specimens from the same plant have the panicles nearly glabrous, the clusters much larger than in

885, the leaf larger, especially the young ones and the petals nearly smooth." (Herbert H. Smith, Colombia, No. 1947.)

No. 883 is in part this species, and is in fruit. The fruit is 2 cm. long, and 1.5 cm. broad, inclusive of the expanded wings, the body 9 mm. long, elliptical, with the summit emarginate, glabrous, the spikes shorter than their leaves, recurved. The flowering specimen is the type. Of 883, Mr. Smith says "A high vine, rare in dry forest not far from sea-level. The specimen with pointed leaves [here described] was collected in a ravine 3 miles northeast of Bonda, about 300 feet, February 3."

Combretum oblongifolium, var. (?)

Inflorescence,young portions and veins of the lower leaf, surfaces ferruginous-pubescent. No axillary panicles seen, the terminal large, leafless, dense, very stoutly peduncled, the peduncles strongly quadrangular and sulcate. Petioles 5 or 6 mm. long, very stout, the blades 6 to 10 cm. long, 3 to 6 cm. broad, obovate with the narrow base slightly but distinctly cordate, the summit mostly rounded, occasionally with a slight blunt point, or slightly retuse; entire, thick, very dark, not shining, the venation prominent beneath, the principal secondaries 8 on a side, the venation finely reticulate. Spikes 4 to 6 cm. long, densely flowered. Calyx-tube 1.5 mm. long, the ovary two-thirds of its length, the bracts wanting or caducous, and not seen. Calyx-limb urceolate in flower, with recurved margin, a little shorter than the tube, 2 mm. broad, pilose within, the teeth very short, blunt. Petals about half the length of the calyx-tube, more than twice as long as broad, glandular on the back. Exserted portion of stamens twice as long as the calyx-tube, considerably exceeding the style.

"A scandent shrub, to 30 or 40 feet. Common locally in dry forests below 1500 feet. Flowers adhere to drying papers so that it is difficult to preserve them well." (Herbert H. Smith, Colombia, 885.)

A portion of 883 appears to be this species, in fruit. The fruits are 2 cm. long, by 1 cm. broad, inclusive of the wings, elliptical, emarginate, the body 5 mm. broad. Of this, Smith says "collected in a ravine near the seashore, Playa Brava, February 10."

Another specimen bearing the same number, but collected near Mamatoca, August 29, and here designated as 885–a, has the leaves oval, all shortly and bluntly pointed, bears lateral panicles, the petals longer and more unguiculate and the filaments stouter and rather shorter. It appears to be a form of *C. oblongifolium*.

Maieta robusta.

Sparsely coarse-pilose, the leaves strongly ciliate. Branchlets stout, rough with the broad shallow leaf-scars. Naked portion of petiole 5 to 8 mm. long, stout, strongly channelled and strongly ciliate, the bladder-bearing portion about 2 cm. long, the inner margin of the bladder slightly exceeding it. Bladder narrowly turbinate, nearly 1 cm. broad at the summit, very finely many-nerved, the nerves ascending from the adnate petiole. Blades 12 to 20 cm. long, 6 to 10 cm. broad, oval or ovate, the base slightly produced into the petiole, the summit abruptly pointed, the point short, narrow and acute; flabellately 5-ribbed, the lateral ribs close to the margin, all prominent underneath and connected by straight nearly divaricate slender secondaries. Axillary panicles sessile or short-peduncled, small and few-flowered, little exceeding the bladders, their branches linear-subulate bracted, as is the base of the calyx. Pedicels slender, thickened upward. Calyx-tube 6 mm. long, turbinate, the strongly ciliate, subulate, attenuate teeth nearly as long, spreading or erect. Perfect petals not seen. Filaments stout, about as long as the anthers. Capsule urceolate, about 5 mm. long.

Collected on the upper Rio Negro, near the Colombian border, by Weiss and Schmidt in 1908.

Hartmannia Boliviana.

Sparsely puberulent. Stems to 2 dm. long, slender, weak, crooked, prostrate or ascending, terete, purplish. Radical leaves to 3 cm. long, and 8 mm. wide, oblanceolate with long tapering petiole-like base and obtuse summit, entire, thick, deep-green, obscurely 3-nerved, the venation obscure, the cauline similar, but half as long or less, ovate or oval, with short base and acute summit. Only one imperfect flower present in my specimen, the corolla deep-red. Fruit purple, sessile, nearly 1.5 cm. long, 4.5 mm. wide at the summit, club-shaped, curved to a third of a circle, bearing four narrow wings which broaden upward and are mostly greenish, and between them very strong purple ribs. Beak very short and broad, shortly 4-toothed.

On Titicaca Island in Titicaca Lake, Bolivia, March, 1910, (Otto Buchtien, No. 2922.)

Pentapanax granatensis.

Glabrous. "Leaves thrice pinnate, some of the ultimate segments pinnate" (Smith). Only one primary segment of leaf seen, namely that next to the basal segment. This is about 3 dm. long and broad, its petiole 7 cm. long, bearing 4 opposite pairs of long and slenderly petioled divisions, and several single leaflets, these branches bearing from 1 to 4 pairs

of leaflets, the basal pair on the lower branch 3-foliolate. Ultimate segments from 3 to 6 cm. long, 1.5 to 3.5 cm. broad, ovate with rounded to truncate, occasionally inequilateral base and abruptly acuminate acute summit, sharply and sparsely serrate, very thin, the venation obscure. Umbels crowded in terminal corymbs with short, very thick, bracted branches, about 2 cm. broad, on slender peduncles 3 to 5 cm. long, the bracts of the branches broadly ovate, thick and corky. Pedicels crowded, slender, about 3 mm. long, bracteolate at the base. Flowers 4 to 5 mm. long and broad, the calyx about one-third of the length, crateriform, minutely toothed, dark, the petals very lightly imbricate.

"A tree to 40 feet or more, occasional in forest below 1500 feet. Flowers white, in March or April. Inflorescence of 10 to 20 short branches crowded together to form a large cluster. Leaves deciduous about the time of flowering, three times pinnate, some of the final segments divided or pinnate. Collected near Masinga, 250 feet, March 22." (Herbert H. Smith, Colombia, No. 1595.) Very near Balansa's No. 3758.

Hydrocotyle grossulariaefolia.

Stems very slender, creeping, regularly sulcate, the ribs and grooves rounded. Petioles slender and weak, 2 to 6 cm. long, striate, sparsely pilose below, densely so toward the summit, the hairs reflexed. Blades 4 to 6 cm. broad, 2 to 3 cm. from petiole to summit, strongly and broadly cordate, 5 to 7-lobed, the lobes broadly ovate, obtuse or acutish, lightly 3-lobed and coarsely and obtusely serrate, the sinuses acutish. Leaves thin, pilose on the veins underneath, the upper surface with a few scattered minute short trichomes. Peduncles filiform, some longer, others shorter than their petioles, more or less pilose, the umbels spherical, loose and open, about 1 cm. broad in flower, very little more in fruit, then dense. Pedicels very slender. Flowers scarcely 0.5 mm. long and nearly as broad. Fruits 2.5 mm. long, 4 mm. broad, strongly ribbed, both ribs and grooves obtuse.

Species near *H. Poeppigiana*, but differing in the form of the leaf-lobes and especially in the angled fruits.

"Diffuse, rooting, 3 to 4 feet, covering the ground on wet banks in open land, Sierra del Libano. One specimen at 7,000 feet, February 26, another from near Valparaiso, 5000 feet, January 20." (Herbert H. Smith, Columbia, No. 1316.)

Gaultheria sanmartansis.

Glabrous. Branchlets elongated, slender, angled, pale-green, densely leafy, the leaves imbricated, at length divaricate

or slightly reflexed. Petioles very short and broad, the blades 8 to 12 mm. long, 4 to 6 mm. broad, ovate, with rounded base and acute summit, thick, very smooth, serrate with thick teeth, the venation prominent on both sides, very strongly so beneath, the secondaries about 3 on each side, strongly ascending, slightly curved, thick. Flowers sub-solitary in the upper axils, the peduncles half as long as the leaves, angled, bracted upon the base, the bracts subulate. Calyx 5 or 6 mm. broad, lobed about half-way, the lobes ovate, thick, mucronulate. Corolla 6 mm. long, the mouth somewhat contracted, the teeth short, recurved, acute. Stamens half the length of the corolla, the filament about as long as the anther, very slender, the anther ovoid, the awns exceeding it and extremely slender. Ovary depressed-globose, the style stout, about as long as the ovary. Berry slightly 5-lobed, 6 mm. broad.

"A shrub to 1 foot high, on top of San Lorenzo Ridge, 6,500 to 7,500 feet, February 7." (Herbert H. Smith, No. 1721.) Apparently the same as Holton's No. 626.

Gaultheria tetriches.

Lower leaf-surfaces shortly and sparsely rough-hairy, the branchlets, inflorescence, etc., glandular-hairy. Branchlets stout, widely spreading, flexuous, terete, deep purple-brown. Petioles 3 to 5 mm. long, strongly channelled above, the blades 5 to 7 cm. long, 2 to 4 cm. broad, ovate with lightly cordate base, and cuspidate summit, entire, thick, pale-green, drying yellowish, the principal venation strongly impressed above, all very prominent and strongly and finely reticulate beneath, the secondaries 5 on each side, strongly ascending, more or less falcate, irregularly connected by the tertiaries. Racemes terminal, simple or branched at the base, shortly peduncled, 5 to 10 cm. long, loosely flowered, the bracts 10 to 12 mm. long, obovate with narrowed base and mucronate summit, purple, thick, finely and strongly many-nerved. Pedicel and flower each 6 mm. long, the calyx 6 mm. broad, lobed about half way, densely hairy, like the corolla, slightly umbilicate at the base. Corolla broadly ovoid, contracted to the mouth, the lobes very small, lanceolate, strongly recurved. Stamens 10, somewhat unequal, the filaments a half longer than the anther, flattened, dilated downward, broad, pilose on the back, the hairs deflexed, the anther oval, obtuse, 4-setose near the summit, the setae nearly half the length of the thecae, straight, erect.

"Unduavi, Bolivia, 3,300 m. altitude, November 1910. A shrub to 2 meters." (Otto Buchtien, No. 2930.)

Gaultheria fendleri.

Veins of the lower leaf-surfaces pilose with coarse deciduous hairs, the rachis and pedicels ferruginous with divaricate hairs.

Branchlets numerous, short, stout, terete, puberulent, erect-spreading, leafy to the base of the inflorescence. Petioles 5 or 6 mm. long, channelled above, the blades 4 to 6 cm. long, 2 to 2.5 cm. wide, with rounded or truncate base, very slightly produced into the petiole, the summit short-cuspidate, the revolute margin obscurely denticulate; very thick, drying brownish, the midrib impressed above, the principal secondaries 4 or 5 on each side, with intermediate ones sometimes equally strong, strongly falcate-ascending, crooked and connected by a crooked network of tertiaries. Racemes in the upper axils and terminal, rather densely flowered, sub-sessile with a number of closely imbricated basal bracts, about 2 mm. long and 4 mm. broad, the lower successively smaller, finely many-nerved, the summit rounded. Bracts of the raceme somewhat similar, larger, concave, at length reflexed. Pedicels 4 to 6 mm. long, pubescent with short, white, divaricate hairs. Flowering calyx 4 or 5 mm. broad, divided about half way, the lobes ovate, obtusish or acute. Corolla 5 mm. long, mostly loosely enclosed by the calyx or the latter at length spreading widely; slightly contracted upward, lobed nearly half way, the lobes broadly ovate, acute. Stamens slightly unequal, the longer more than half the length of the corolla, the filament more than twice the length of the anther, slender, the very slender awn of the anther nearly terminal, less than half as long as the anther, the cells minutely mucronulate. Ovary depressed-globose, shorter than the calyx, the style stout, about as long as the ovary. "A shrub 2 to 3 feet high, in open ground, top of San Lorenzo Ridge, 6,500 to 7,500 feet, February 27. Flowers white. (Herbert H. Smith, Colombia, No. 1719.) The same as Fendler's 741, and also collected by Burchell.

Macleania robusta.

Glabrous. Branchlets erect, stout, terete, leafy to the summit. Petioles 5 to 7 mm. long, very stout, fleshy, rugose in drying, the blades 4 to 7 cm. long, 2 to 3.5 cm. broad, oval with rounded base and blunt or sub-rotund summit, entire, thick, drying brownish, the principal veins slenderly impressed above, prominent beneath, 3 or 4 pairs of secondaries originating below the middle and strongly decurrent on the midrib, the upper ones faint and loosely anastomosing. Racemes in the upper axils and crowded at the summit, few-flowered, bracted at the base, the bracts imbricated, small, broadly ovate, obtuse or acute. Peduncles very short, the pedicels at length 2 cm. long, thickened upward, 2-bracteolate below the middle, the bracts very small, ovate, acute. Calyx articulated to the pedicel, the tube 2 mm. long, 3.5 mm. broad, the limb 6 or 8 mm. broad, about as long as the tube, shortly and very broadly 5-toothed, the teeth acute. Corolla 13 mm. long, slightly ventricose

below the middle and then 6 mm. broad, contracting to 4.5 mm. at the mouth, the teeth 2 mm. long, triangular, acute, recurved, the style 1 or 2 mm. exserted. Stamens 10 or 11 mm. long, the filaments at first connate, then separating, 3 mm. long, nearly 2 mm. wide, thin, attached above the broad base of the cells, the stout awns nearly as long as the cells, abruptly inflexed at the base.

"A shrub to 5 feet, with deep-red flowers, in open lands. Sierra del Libano, 6000 to 7000 feet, January 28." (Herbert H. Smith, Colombia, No. 1722).

Apparently the same as Hartwick's No. 786.

Macleania arcuata.

Calyx almost imperceptibly puberulent, the corollas not seen; otherwise glabrous. Branchlets very stout, terete, wrinkled. Petioles nearly 1 cm. long, very stout, sub-terete, fleshy, strongly rugose when dry. Blades 7 to 12 cm. long, 3 to 7 cm. broad, ovate with rounded or sub-cordate base and obtuse or acutish summit, the margin entire and revolute, very thick, pale-green, the venation slenderly impressed above, sharply prominent beneath, 3 or 4 principal secondaries on each side originating below the middle, strongly decurrent on the midrib, sub-erect, lightly curved, the upper ones faint, connecting with the upper pair of the principal ones. Racemes in the upper axils and terminal, few or many-flowered, shortly and stoutly peduncled, the peduncles minutely bracted at the base. Pedicels very stout, about 2 or 2.5 cm. long, deflexed at the base, then sharply curved and erect, 2-bracteolate below the middle, the bractlets small, ovate and acute. Calyx articulated to the pedicel, the tube (in young fruit) 6 mm. long and 5 mm. broad, cupulate, the limb 2 mm. long, 8 mm. broad, the short triangular teeth acute.

"A tree to 10 feet, on top of open ridge, Sierra del Libano, 6,000 feet, January 20." (Herbert H. Smith, No. 2789.)

Macleania recurva.

Upper portions of plant, inflorescence, flowers and lower leaf-surfaces puberulent. Branches erect, stout, terete, leafy to the summit. Petioles 3 to 6 mm. long, very stout, grooved above, lightly carinate beneath at the upper portion. Blades 6 to 8 cm. long, 2.5 to 4 cm. broad, lance-ovate, with rounded and very slightly produced base and obtuse summit, entire, thick, pale-green, drying brownish, the principal veins slightly prominent beneath, the principal secondaries 2 on each side, originating below the middle and slightly decurrent upon the midrib, strongly ascending, the smaller ones above about 5 or 6 on each side, faint, connecting by a loose reticulation with

the upper principal pair. Racemes in the upper axils, about 5-flowered, mostly shorter than their leaves (except the upper ones) the peduncles very short and stout, obsoletely bracted, the pedicels at length 1.5 cm. long, bearing 2 deciduous, very small ovate acute bractlets below the middle, very stout, thickened upward, fleshy, drying with sharp wrinkles, blackish, articulated with the calyx. Flowering calyx-tube 5 mm. long, turbinate, obtusely angled, the limb 8 mm. broad, sinuately 5-toothed, the teeth very short, acutish. Corolla 15 mm. long, slightly ventricose below the middle and there 6 mm. broad, gradually contracted to 3 mm. just below the mouth, the latter again expanded to 5 mm. very shortly 5-toothed, the teeth slightly spreading, obtusish. Filaments 2 mm. long, more than half as broad, not connate, flat and thin, attached 1 mm. above the broad obtuse base. Thecæ muricate or papillose, 5 or 6 mm. long, exclusive of the slender awn, which is about 4 mm. long. Style slender, slightly exceeding the corolla, the stigma truncate.

"A shrub, 3 feet high, in damp clearings, Sierra del Libano, 6,000 feet, January 22. Flower red; calyx hairy," (Herbert H. Smith, Colombia, No. 1964.)

Apparently the same collected by Holton at Bogota.

Sophoclesia robusta

Glabrous. Branches elongated, stout, terete, the internodes less than half as long as the leaves. Petioles 3 to 5 mm. long, stout, the blades 3 to 6 cm. long, 2 to 3.5 cm. broad, ovate with rounded or subcordate base and obtuse summit, entire, revolute, thick, drying brownish, the midrib impressed above the venation slightly prominent beneath, 3-nerved, with 5 to 7 faint crooked secondaries on each side, the remaining venation finely reticulate. Peduncles solitary in the axils, 1-flowered (always ?), less than half the length of their leaves, filiform, finely striate. Calyx puberulent, urceolate, 1.5 mm. long and broad, the lobes extremely short and broad. Corolla campanulate, about 2 mm. longer than the calyx, minutely 5-toothed, the teeth erect. Style slender, long-exserted.

Specimen unique, collected in Bolivia by M. Bang, without number or locality.

Vacciniopsis tetramera.

Branches tomentose, the lower leaf-surface appressed-brown-hairy and black-dotted. Branchlets stoutish, erect, blackish below and roughened with leaf-scars, above purplish, angled, densely leafy. Leaves sessile but with a short, narrow petiole-like base, the blades 8 to 10 mm. long, 4 to 6 mm. broad, elliptical with a slightly produced base and obtuse summit, entire, revolute, thick, bright-green and much wrinkled above, brown

beneath, obscurely 3-nerved, the venation inconspicuous. Flowers solitary in the axils, erect or somewhat spreading, the short stout pedicels enclosed in imbricated, broad, ovate bracts. Calyx campanulate, closely enclosed by a pair of bracts 3 mm. long and much broader, with broad rounded summits, thick and rigid, the calyx exceeding the bracts, 4-lobed, the tube about as long as the lobes, turbinate, obscurely 4-angled, the lobes erect, ovate, thick, obtusish. Calyx in flower of the same red color as the corolla, in fruit enlarging more or less and becoming greenish, with minute brown tips. Corolla about twice the length of the calyx, deep-red, the tube cylindrical and more than half as broad as long, pilose within, thick and tough, the 4 lobes half as long as the tube, strongly recurved, ovate, obtuse. Stamens 8, a little longer than the corolla-tube, attached lightly to its very base, distinct, the filaments a half longer than the anthers, dorsally flattened, densely pilose, narrowing regularly from the summit to the base. Anthers at the base as broad as the top of the filament, the bodies short, the two awns long. Ovary extremely short, discoid, constricted around the middle, 5-lobed at the summit, which is depressed in the center, the style stout, straight, a little longer than the stamens, the stigma truncate. Very young fruit globose, with a thick, annular, light-colored epigynous disk, depressed in the center, the style deciduous.

Fragmentary specimen unique. Collected in Bolivia, probably by M. Bang, in the vicinity of Cochabamba, but data completely wanting.

Psammisia elegans.

Glabrous. Branchlets slender, coarsely angled above, very leafy at the summit. Petioles about 1 cm. long, blackish, stout. Blades 15 to 20 cm. long, 7 to 10 cm. broad, ovate with broadly rounded base and abruptly short-acuminate obtuse summit, entire, thin, drying brownish, the slender venation sharply prominent beneath, 2 pair of ribs originating flabellately near the base of the midrib and running by a series of loops nearly to the summit, one or two pair of smaller ones originating beneath them, the remaining venation loosely reticulate. Peduncles (detached in my specimen) elongated, slender, striate, naked, the pedicels crowded at and near the summit, 3 or 4 cm. long, slender, bracted at the base, with small, ovate, acuminate bracts, and 2-bracteolate below the middle, the bractlets very small, ovate, acute. Calyx articulated to the pedicel, the tube campanulate, 5 mm. long and mostly wider, the limb 1 cm. or more wide, lobed nearly to the base, the lobes very broad with narrow acute sinuses and rounded mucronulate summit. Corolla 2.5 cm. long, 6 mm. broad in the slightly ventricose lower portion, contracted toward the summit, the teeth short,

ovate, acute, recurved, the style exserted about 2 mm., the stigma truncate. Stamens 1.5 cm. long, the filaments distinct, half as long as the anther, narrow, flattened, attached 3 mm. above the broad, truncate base, the awn half as long as the thecae, divided half way to its base. Dorsal appendages not apparent.

"A vine to 25 or 30 feet, with bright red flowers, in damp forest and thickets near streams, Las Nubas, 4,500 feet, December 2." (Herbert H. Smith, Colombia, No. 1554).

Cybianthus foliosus.

Glabrous, the stems erect, very stout, purple, striate, sparsely and slightly angled above. Petioles 6 or 8 mm. long, purple, broad, thinly margined and keeled, attached by a broad base. Blades 10 to 15 cm. long, 4 to 6 cm. broad, oblong to oblanceolate, with short-acuminate base and a very short obtusish point at the summit, entire, thin, deep-green and profusely black-dotted, the dots coarse, the very finely anastomosing slender venation prominent beneath, slightly so above, the principal secondaries numerous, very slender, strongly ascending, faintly connecting close to the thinly revolute margin. Panicles axillary, shorter than their leaves, very slenderly peduncled and branched, loose and open, the bracts minute, ovate, the flowers mostly in threes at the ends of the branchlets, slenderly pedicelled, the pedicels mostly longer than the flowers, dilated and angled at the summit. Calyx-tube crateriform, 2 mm. broad and half as long, the lobes 2 mm. long, ovate, obtuse, thin. Corolla parted nearly to the base, the lobes 3 mm. long, oval with rounded summit, thin, purple striate. Stamens 5, shorter than the corolla, the slender filaments shorter than the anthers.

Santa Catalina, lower Orinoco, Venezuela, May, 1896 (Rusby and Squires, No. 292).

Icacorea granatensis.

Glabrous, the branchlets terete, nerved, very leafy. Petioles 10 to 15 mm. long, stout, narrowly margined, channeled above, the blades 10 to 15 cm. long, 4 to 6 cm. broad, oval or oblong, abruptly and slightly produced at both ends, acute, entire, thick, the midrib sharply prominent beneath, narrowly channelled on the upper surface, the very numerous and very slender secondaries lightly prominent on both sides, nearly straight, faintly anastomosing near the margin, the venation finely reticulate. Panicle terminal, shortly and stoutly peduncled, loosely branched and flowered. Flowers not seen. Pedicels of very young fruits mostly deflexed, 3 mm. long, thickened upward, nerved and minutely roughened. Calyx a third the

length of the pedicel, lobed more than half way, the lobes appressed, broadly ovate with rounded summit. Style slender, a little longer than the calyx-lobes.

"A small tree to 10 or 12 feet. Common in wooded valleys by streams, below 1500 feet. Collected near Bonda, August." (Herbert H. Smith, Colombia, No. 432).

A part of 431 is the same, with ripe fruit, which is about 6 mm. in diameter and has a short style-base. Smith says "Berries red, at length blackish."

Icacorea Herbert-Smithii.

Glabrous, the branchlets slender and crooked. Only small inflorescence-leaves seen, the largest 6 cm. long, 3.5 cm.broad, ovate and abruptly contracted into a broad petiole-like base, acute, obscurely crenate, minutely dark-punctate underneath, where the minutely roughened venation is sharply prominent. Smaller foliage leaves spatulate, sessile. Panicle compound, large and openly branched, the branches long and slenderly peduncled, the flowers crowded at the ends of the ultimate divisions. Pedicels very slender, at length 5 mm. long, costate, minutely hispid. Flowers 4-merous. Calyx 1 mm. long, the lobes ovate, obtuse. Corolla-lobes 4 mm. long, ovate with rounded summit, not spotted. Filaments short, the anthers sub-equal, 2 mm. long, lanceolate, acute, the style very little exceeding them.

Collected without data by Herbert Smith, Colombia (No. 859).

Icacorea sanmartensis.

Glabrous, the branchlets stout. Petioles about 2 cm. long, very stout, narrowly winged, strongly channelled above. Blades 10 to 15 cm. long, 6 to 9 cm. broad, obovate, the base abruptly produced into the petiole, the summit with a very short, broad, acutish point, entire, thick, deep-green above, paler beneath, the midrib sharply prominent beneath, lightly channelled above, the venation slightly prominent beneath, the surface obscurely dark-dotted. Panicles in the upper axils and terminal, shorter than their leaves, shortly and stoutly peduncled, loosely few-branched and few-flowered, the pedicels shorter than their flowers, angled, thickened upward. Sepals imbricate, strongly maculate, 6 mm. long and about half as broad, oval with rounded summit, appressed. Petals 15 mm. long, marked like the petals. Filaments short, the anthers 5 mm. long, narrowly deltoid, minutely apiculate. Style about 2 mm. longer than the stamens.

"A tree, to 30 feet, on damp wooded hillsides, 4,500 feet, Las Nubes, December 3. Flowers white with pink spots." (Herbert H. Smith, Colombia, No. 781).

Species near *I. rosea*.

Symplocos mapirensis.

Specimen in fruit. Glabrous, the branchlets stout, purplish-brown, very leafy, the internodes 2 to 2.5 cm. long. Petiole 6 to 8 mm. long, broadly and shallowly channelled above, the blades 8 to 12 cm. long, 3.5 to 4 cm. broad, lanceolate with rounded or obtuse base and abruptly short-acuminate obtuse summit, entire, thickish, deep-green, drying blackish above and yellowish underneath, the midrib lightly impressed above, sharply prominent underneath, like the venation, the principal secondaries about 9 on a side, interarching about three-fourths of the way from the midrib to the margin. Peduncles short and stout, angled, several-fruited, the pedicels very short. Fruits globose, black, 6 mm. broad, the persistent calyx-lobes very small, nearly semicircular.

Mapiri, Bolivia, 2500 feet, May 1886 (H. H. Rusby, No. 2685.)

Buddleia cochabambensis.

Densely white-tomentose, excepting the upper leaf-surfaces, the branchlets ascending, slender, terete. Petioles 5 to 8 mm. long, margined, the blades (only the upper seen), 4 to 8 cm. long, 1.5 to 3 cm. broad, lanceolate with the base very abruptly contracted into the petiole, acute at the summit, unequally dentate with short, broad, acute, salient teeth and rounded sinuses, deep-green above, thin, the venation lightly prominent beneath, the secondaries about 10 on each side, rather crooked, inter-arching near the margin. Heads solitary in the axils, very short peduncled, hemispherical, the largest 2 cm. broad, densely flowered, the base involucrate-bracted. Flowers 4-merous, 5 mm. long, the calyx two-thirds of the length, lobed a third of the way, the tube turbinate, the lobes broadly ovate and obtuse, the sinuses acute. Corolla maroon-purple, in the dried state, lobed a third of the way, the lobes broad and rounded, recurved. Anthers sessile, attached just below the sinuses. Ovary short and broad, pilose like the style, which exceeds the anthers, and is stout, clavate and undivided.

"A shrub 1.5 M. high, the flowers orange-colored. Collected at an altitude of 2700 meters. (Buchtien, Bolivia, No. 2408.)

Spigelia filipes.

A perennial herb, glabrous throughout. Stems from a half to one meter high, branched above, more or less sulcate, the branches very slender. Leaves 8–12 cm. long by 4 to 8 cm. broad, oblanceolate to obovate, abruptly narrowed into a petiole-like base, obtuse or acutish, thin, the veins very slender, the principal ones about 5 pair, strongly ascending. Spikes 15 to 20 cm. long, very slender, curved, long-peduncled, the

flowers 2 or 3 mm. apart. Flowers 2.5 cm. long, very slender, light-red, the calyx 3–4 mm. long, parted almost to the base, the lobes setaceous, erect, with spreading tips. Corolla-tube slightly dilated just above the middle, the lobes short and broad. Seed-pod yellowish, about two-thirds the length of the calyx, ovate and acuminate.

Collected by Rusby and Squires on Eleanor Creek, lower Orinoco, in May, 1896. (No. 145).

Aspidosperma elliptica.

Inflorescence and young stems puberulent, the lower leaf-surfaces gray-downy, with almost imperceptible hairs. Branchlets short, spreading, leafy. Petioles 6 to 8 mm. long, stout, the blades 4 to 8 cm. long, 2 to 4 cm. broad, oblong or oval with rounded base and summit, thick, pale-green and dull, the venation prominent on both sides, strongly so beneath, the secondaries about 15 on each side, with some additional fainter ones, widely spreading, nearly straight, bifurcating at the ends and inter-connecting, the remaining venation finely and strongly reticulate. Peduncles (in flower) about 2 cm. long. Cymes compound, 4 or 5 cm. broad, rather densely flowered, the bracts 1 or 2 mm. long, ovate, acute, the flowers subsessile and crowded at the ends of the branchlets. Flower 4 or 5 mm. long, the calyx a little more than a third of the length, lobed nearly to the base, the lobes broadly ovate, acutish, lightly carinate. Corolla-lobes more than half as long as the tube, thick, densely pilose at the base. Anthers deltoid-ovate, nearly half as long as the corolla-lobes. Style exceeding the calyx. Ovary short and broad, minutely puberulent. Follicle 4 cm. long, nearly 2 cm. broad, falcately oblong, softly whitish-papillose, a line running along the middle of the side. Seed oval, 1.25 cm. long and nearly as broad, narrowly margined on both sides by the wing, which extends below it about 3 mm. and nearly 2 cm. above and is falcately lance-oblong, and of a whitish or pale-brown color.

"Rather rare in forests and open lands. Collected at Masinga Vieja, 800 feet, April 25, and at Bonda, in February. (Herbert H. Smith, Colombia, No. 836, in part).

Mr. Smith collected two species under this number. That with acuminate base and shining upper surface of leaf and very small, narrow, thick and crescentic pods, appears to be *A. decipiens* Müll. Arg.

Tabernaemontana longiflora.

Glabrous. Branchlets irregularly quadrilateral. Petioles 5 or 6 mm. long, very stout, broadly channelled on the upper side. Blades 7 to 15 cm. long by 3–5 cm. wide, oblong, short-

acuminate and obtuse at each end, coriaceous, entire, deep-green and with the very slender venation lightly prominent on both surfaces, the midrib sharply impressed above. Principal veins about 17 on each side, nearly straight, widely spreading. Panicle small, broad, densely flowered, shortly and stoutly peduncled, subulate-bracted. Sepals distinct, 2 mm. long and broad, ovate, blunt, thickish, the disk annular, continuous, broad and entire. Corolla tube 3 cm. long, extremely slender, more so below, the limb nearly 3 cm. broad, its lobes obovate-spatulate with narrowed base. Collected by H. H. Rusby at Bolivar, Venezuela, April, 1896, without number. The same collected by Stevens.

Tabernaemontana albescens.

Glabrous, with the leaves glaucous beneath. Branches slender, pale-green, the branchlets more or less quadrangular. Petioles 5 or 6 mm. long, broad, channeled above and connate. Blades 10 to 25 cm. long, 3 to 8 cm. broad, lance-oblong, with the base abruptly produced into the petiole, and abruptly short-pointed and acutish summit, deep-green above, very pale or whitish underneath, especially along the course of the secondaries, which are 18 to 20 on each side, with some additional fainter ones, very slender, sharply prominent beneath, spreading widely and falcately and connecting near the margin. Peduncle about as long as the petiole, stout, brown, few-flowered, the pedicels 5 or 6 mm. long, sharply angled above, about twice the length of the ovate, acute thickish bracts. Calyx campanulate, 6 or 7 mm. long, lobed more than halfway, the lobes obovate with rounded summit. Corolla-tube nearly 2.5 cm. long, 2 mm. thick, slightly dilated at the summit, the limb 4 cm. broad. Anthers just below the throat of the corolla, 6 mm. long.

Santa Catalina, Lower Orinoco, Venezuela, May, 1896, (Rusby and Squires No. 300.)

Tabernaemontana cuspidata.

Glabrous. Branchlets quadrangular, very slender, the internodes longer than the leaves. Leaves about 15 cm. long by 5–7 cm. broad, oblanceolate, abruptly contracted at the base into a very short broad petiole and at the summit into a short and narrow obtuse point. Panicles small and few-flowered, the peduncles about 4 cm. long, the pedicels very slender, 15 mm. long. Calyx lobed nearly to the base, the lobes finely-many-nerved, 5 mm. long and nearly as broad, with regularly rounded summit, very thick and tough. Corolla tube 18 mm. long, rather stout, the lobes 6–8 mm. long, broadly ovate, obtuse. Glands of the calyx lobes originating slightly above the base, 3 on each lobe, yellow, mostly 2-parted. Glands of the disk blackish. Ovaries stout, more than half the length of the calyx.

Near *F. tetrastachys*.

Collected by H. H. Rusby at the Falls of the Madeira in Brazil, October, 1886. (No. 2376.)

Tabernaemontana myriantha Britton.

Glabrous except for a sparse and very short soft pubescence on the lower leaf-surfaces. Leaves 8–17 cm. long by 3 to 7 cm. broad, oblong, abruptly contracted at base into a short petiole and at the summit into a short obtuse acumination, entire, membranaceous, deep-green above, pale underneath where the very slender venation is sharply prominent, the principal veins about 18 pairs with some fainter ones intervening, diverging nearly at a right angle with the midrib and slightly upcurved. Much-branched panicles axillary, sessile, short and broad, minutely subulate-bracted at the points of branching. Pedicels slender, 3 or 4 mm. long, subulate-bracted at the base. Calyx lobes distinct nearly to the base, 2 to 2.5 mm. long and nearly as broad, oval-elliptical and with lighter margins. Corolla tube about 10 mm. long, slender, the limb 12 to 15 mm. broad.

Collected by H. H. Rusby at the Junction of the Rivers Beni and Madre de Dios, Bolivia, August, 1886. (No. 2377.)

Rauwolfia littoralis.

Inflorescence and both leaf-surfaces minutely puberulent. Branchlets slender and weak, the internodes about half the length of their leaves. Total length of leaves 8 to 16 cm., their breadth 4 to 8 cm., mostly rhomboidally obovate, abruptly contracted into a short petiole-like base and into a short, broad, acute, point at the summit, entire, very thin, dark-green, the venation slender, weak, finely reticulate, the principal secondaries about 10 on each side, prominent underneath, falcately ascending and obscurely anastomosing. Cymes between the petioles small, loosely flowered, about 2 to 5 cm. broad, their peduncles 1 to 3 cm. long, slender, the pedicels about as long as the flowers, which are about 4 mm. long. Calyx crateriform or sub-hemispherical, less than half the length of the flower, sinuately lobed. Disk crateriform, the margin sub-entire, Ovaries equaling the calyx, the style stout, cylindric, about as long as the ovaries, exclusive of the annulus, which is nearly a third of the total length and broad and conspicuous. Corolla densely pilose within, not constricted, the lobes about one-fourth the total length, spreading, ovate with rounded summit. Anthers very small, sub-sessile, attached about the middle of the corolla.

"A tree 25 feet high, rare in thickets by the seashore, in somewhat swampy ground near the mouth of the Buritaca River, September 22, the flowers white." (Herbert H. Smith,

Colombia, No. 1905). No. 1906 appears to be the same. Its petioles are a little shorter and the leaf-base less acuminate. Its fruits are about 8 mm. broad. Of it Smith says, "A shrub, to 8 feet, near a stream in dry forest 5 miles north of Bonda, 100 to 200 feet. Berry red, at length black. Flowers April 28, fruit January 14."

Echites Sanctae-Martae.

Lower leaf surfaces, at least when young, tomentellate and somewhat ferruginous, the stems very slender, terete. Petioles 1 to 2 cm. long, slender, sulcate, the blades 6 to 10 cm. long, 1.5 to 4 cm. broad, lanceolate with rounded or blunt base and acuminate and acute summit, very thin; deep-green, the slender venation little prominent, the secondaries about 5 on each side, ascending and falcately connecting near the margin. Peduncle a little longer than the petioles, stout, bifid, the branches densely several-flowered, the bracts minute, the pedicels about half as long as the peduncle. Calyx 6 or 7 mm. long, divided nearly to the base, the sinuses open, the lobes herbaceous, narrow, tapering regularly from the base to the acute summit. Corolla-tube 1.5 cm. long, cylindrical, contracted slightly at the summit, the throat 6 mm. long, campanulate, the limb 2 cm. broad. Glands absent, the disk 2 mm. long, nearly equaling the ovaries, of 5 more or less connate, very thick scales with rounded summits. Ovaries coherent. Stamens attached at the summit of the tube, the surface pilose, the filaments very short, the anthers 3 or 4 mm. long, sharply acuminate, as are the basal lobes. Style very slender, the stigma conical, with a concave membraneous appendage a little below, apparently from the anthers. Follicles unequal, the longer 4 or 5 dm. long, very slender, torulose.

"Twining to 40 or 50 feet. Occasional in damp forest, 3,000 to 4,500 feet. Corolla magenta-crimson. Collected above Jinacasaca, 3,000 feet, August 25." (Herbert H. Smith, Colombia, No. 2525.)

Echites Laurentiae-disca.

Glabrous, the stems slender, terete, the petioles 6 to 10 mm. long, slender, sub-carinate on the lower surface, the blades 5 to 10 cm. long, 2.5 to 5 cm. wide, ovate with rounded very slightly produced base and short-acuminate and acute summit, thick and smooth, the venation prominent beneath, the secondaries about 6 on each side, falcate and inter-arching at some distance from the margin, the venation sparse and coarsely reticulate. Peduncle 2 to 2.5 cm. long, the raceme simple, bractless, the pedicels 6 or 7 mm. long, slender. Calyx 2 mm. long, 4 mm. broad, the lobes ovate, obtuse. Corolla-tube 1.5

cm. long, 5 mm. broad, as pressed, strongly contracted at the summit, the limb 2.5 cm. broad, the stamens attached at the base of the constricted portion, the filaments very short, the anthers 6 mm. long, sharply acuminate at the summit and base. Stigma bi-penicillate. Calyx-lobes ovate, as long as the disk. Glands 5, triangular-ovate, acutish, thin. Disk, of 5 scales, 4 of them in connate pairs, the fifth free, their summits rounded.

Santa Catalina, lower Orinoco, Venezuela, May, 1896 (Rusby and Squires, No. 302.)

Echites bicorniculata.

Younger portions and lower leaf-surfaces puberulent-downy. Stems slender, terete. Petioles 6 to 8 mm. long, channeled above, and bearing a pair (or 4) of subulate, acute, cartilaginous glands or horns at the summit. Blades 5 to 7 cm. long, 2.5 to 3 cm. broad, oblong-ovate, with slightly cordate base and mucronate summit, thickish, the margin thinly revolute; venation obscure on both surfaces, the secondaries 6 on each side, spreading, lightly falcate. Peduncles a little longer than the petioles, stout, the bracts short, broadly ovate, stoutly keeled and mucronate, the cyme very shortly bifid, the pedicels short, stout, angled. Calyx campanulate, 3 mm. long, 4 mm. broad, the lobes ovate, obtuse. Corolla-tube 6 to 8 mm. long, constricted above, the limb 1.5 to 2 cm. broad. Throat esquamate, pilose, the anthers 4 mm. long, acuminate, short-acuminate and obtuse at the base. Membranous annulus below the stigma large. Calyx multi-glandular within, the disk of 5 lobes which exceed the ovaries. Style thickened toward the base.

"A twining vine, to 20 feet, in thickets, on plains near the sea-coast. Cienaga, September 10." (Herbert H. Smith, Colombia, No. 1640.)

Dipladenia alba-viridis.

Young portions and lower leaf surfaces puberulent, the stems slender, terete, reddish. Petioles 1 to 2.5 cm. long, stout, sulcate, the blades 7 to 12 cm. long, 4 to 9 cm. wide, ovate-oval with cordate base, the lobes rounded, and with abruptly short-pointed and very acute summit, thick, deep-green and drying brownish underneath, the venation prominent underneath, the secondaries about 8 on each side, widely spreading, then falcately ascending near the margin, connected by slender tertiaries. Peduncles (but one seen) 3 cm. long, slender, the flowers 4, simply racemed, the bracts small, subulate and acuminate. Pedicels 1 cm. long, upwardly thickened. Calyx 5 mm. long, rather deeply 5-lobed, the lobes thick, ovate and acuminate, the glands several, minute, almost setose. Disk unilateral, consisting of two 2-lobed thick ligules and another half-ligule with rounded summits, about half the length of the two distinct

ovaries. Stigma conical, about 3 mm. long and broad, the base reflexed, 5–lobed, the tips of the lobes whitish. Corolla-tube cylindrical, 1 cm. long, the remainder 2.5 cm. long and broadly campanulate. Stamens attached to a densely pilose ring at the summit of the tube, without scales, the filaments very short, the anthers 6 or 7 mm. long, short-acuminate but not acute, the basal lobes almost wholly adnate and obtusish.

"A twining vine to 20 feet, rare in damp forest and neglected clearings. Sierra del Libano, 6,000 feet. Corolla white, greenish on the outside. Collected January 22." (Herbert H. Smith, Colombia, No. 1904.)

Dipladenia Buchtienii.

Finely and softly puberulent throughout, the stem rather stout, erect, terete, striate, in my specimen 3 dm. high, the very short hairs divaricate or slightly reflexed, the leaves approximate, subsessile, 4 or 5 cm. long, the lower nearly as broad, the upper about half as broad, oblong or oval with sub-cordate base and broad, very slightly pointed summit, thickish, the venation obscure, the secondaries 8 or 10 on each side, stoutish, ascending and strongly upcurved in the outer third. Flowers (5 in my specimen), approximate, the stout pedicels 6 to 10 mm. long, upwardly thickened, nerved, the bracts about half the length of the pedicel, thin with a thick midrib, brown, ovate, mucronulate. Calyx 6 mm. long, parted to the base, pilose within at the base, the lobes ovate, acuminate, thin, brown. Corolla-tube 8 mm. long, 3 mm. wide, 15-nerved, the nerves grouped in three's, the throat 2.5 cm. long, narrowly campanulate, the limb 2.5 or 3 cm. broad. Inner scales of the calyx very small and short, the disk-lobes narrow, about half the length of the ovaries.

"Polo-Polo, near Coroico, Bolivia, 1100 M. altitude, November 11, 1912." (Otto Buchtien, part of No. 3903, the other portions being *D. tetradenia* Rusby.

Dipladenia piladenia.

Puberulent throughout, the stem slender, branching from the base, in my specimen half a meter high, terete, striate, the brownish short hairs strictly divaricate. Lower leaves rudimentary, relatively broader than the upper, the middle leaves largest. Petioles extremely short, the blades 5 to 10 cm. long, 1.5 to 3 cm. broad, lanceolate with rounded base and abruptly very short-pointed summit, the point rather broad; thickish, drying brownish, softly and very shortly puberulent on both surfaces, the venation inconspicuous, the principal secondaries about 15 on each side, very slender, ascending and but little curved. Flowers few (3 in my specimen), distant, the pedicels

12 mm. long, stoutish. Calyx-tube 2 or 3 mm. long, the teeth 1 cm. long, long-attenuate from a lanceolate base. Corolla apparently rose-colored, the tube proper cylindrical, a little longer than the calyx, 2 or 3 mm. wide, the infundibular throat about as long as the tube, the limb about 5 cm. broad. Inner scales of the calyx erect, ovate, about half the length of the ovaries, the disk lobes oval, about as long as the scales, pilose.

Reis, Bolivia, 1500 feet. June, 1886 (Rusby, No. 2694).

Dipladenia tetradenia.

Softly pubescent throughout, except the corolla, which is nearly glabrous. Stems erect, simple, to half a meter high, terete, striate, leafy in the middle portion, the lower leaves rudimentary, the upper ones usually the largest. Petioles extremely short, about as broad as long, the blades 4 to 7 cm. long, 3 to 5 cm. wide, oval-elliptical, or broadly ovate with subcordate base and mucronulate summit, thickish, drying brownish, the venation weak, not prominent, the secondaries about 9 on each side, falcate and obscurely connecting near the margin. Flowers usually 2 or 3, the pedicels to 2.5 cm. long, terete, striate, minutely subulate-bracted at the base, the bracts deciduous. Calyx 6 to 8 mm. long, parted to the base, the lobes regularly attenuate from a triangular base. Corolla-tube 8 mm. long, the infundibular throat more than 2 cm. long, the limb to 6 cm. broad. Glands 2 or more on each sepal, half as long as the disk, erect, ovate, mostly acutish. Disk more than half the length of the ovaries, of 4 scales, those alternating with the ovaries very broad, 2-lobed, the others narrow, all with rounded summits. Ovaries glabrous. Filaments attached 5 mm. from the base of the corolla, 2 mm. long, broad, densely pilose. Anthers 6 mm. long, the cells separated at the broad rounded base, the narrow upper dark portions a half longer than the broad light-colored lower portions. Stigmas reaching to the middle of the anthers, the ring inversely campanulate, 2 mm. long and broad, the lower margin crenate.

"Yungas, Bolivia, 1890 (M. Bang, No. 249, distributed as "*Dipladenia illustris*") Buchtien's No. 3903 from Polo-Polo, is the same, impart.

In its drisk, point of filament attachment and non-adnate anther bases, this species differs markedly from *Dipladenia*, but I refrain from proposing a new genus on artificial grounds, for a plant that belongs so naturally with *Dipladenia*.

Dipladenia glabra.

Glabrous. Stems twining, the branches slender, terete, leafy. Petioles 10 or 12 mm. long, slender above, dilated at the base and the pair connate to form an interpetiolar line or short

sheath, its margin more or less fimbriate, the fimbriae dark-colored. Blades 5 to 7 cm. long, 1.5 to 3 cm. broad, oblong-obovate with a slight contraction a little below the middle, the base slightly cordate, the summit abruptly short-acuminate and acute, the slender reddish venation not prominent, the secondaries about 15 to 17 on each side, spreading, the extremities upcurved and connecting near the margin, connected by numerous crooked tertiaries, which are slightly impressed on the upper surface. Racemes axillary, peduncled, elongated, nodose from the fallen flowers, which are rather distantly placed. Pedicel 1 to 1.5 cm. long, striate, slightly thickened upward. Calyx-lobes nearly 1 cm. long, ovate, long-acuminate and acute, thin. Ovaries 2 mm. long, the inner glands of the calyx very unequal, mostly small and obscure. Disk of two thick scales half as long as the ovaries, obovate with truncate summit. Corolla-tube about 13 mm. long, 1.5 mm. wide, the throat narrowly campanulate, 2 cm. long, finely many-nerved, the limb 3 to 3.5 cm. broad. Follicles nearly parallel, 8 to 10 cm. long, and 8 mm. broad after opening and expanding, terete, lightly falcate.

"Cotana, near Ilimani, Bolivia, 2,450 meters altitude, November, 1911. A climbing shrub of variable height." (Otto Buchtien, No. 3229.)

The habit of this plant is quite unlike that of Dipladenia, as are its peculiar interpetiolar sheaths and its calyx-glands. It is quite different in these respects from any other genus, and is likely, on better acquaintance, to prove distinct.

Odontadenia cuspidata, n comb.

= *Dipladenia cuspidata* Rusby. Bull. N. Y. Bot. Gard. 4:410 (1907).

Mandevilla attenuata.

Soft-tomentose throughout, the stems very slender, terete, striate, reddish, the internodes shorter than their leaves. Petioles extremely short, thick, the blades 6 to 9 cm. long, 2 to 3.5 cm. broad, lanceolate with rounded or slightly cordate base and long-acuminate and acute summit, deep-green above, yellowish-gray beneath, the principal veins lightly impressed above, slightly prominent beneath, the secondaries about 12 on each side, very slender, ascending, lightly falcate and connecting near the margin. Peduncles 1 to 1.5 cm. long, stout, few-flowered, the pedicels about equal, both angled, exceeded by the lanceolate long-acuminate bracts. Calyx 6 or 7 mm. long, the tube very short, 3 or 4 mm. broad, the divisions appressed, lanceolate, long and slenderly acuminate. Inner scales of the calyx short, ovate, obtusish, nearly equalling the very thick

disk, which is longer than the ovaries and is shallowly lobed, the lobes with broad rounded summits. Corolla-tube proper twice the length of the calyx, cylindrical, about 3 mm. thick, the throat broadly campanulate, about 2 cm. long and equally wide at the summit, the limb broadly campanulate, about 5 cm. broad. Stamens inserted at the pilose summit of the tube, the filaments very short, the anthers short, ovoid, acute. Young follicle 25 cm. long, very slender, torulose.

"A twining vine, to 6 or 8 feet. Corolla bright-yellow. Occasional in clearings and edges of forests near Las Partidas and Valparaiso, 3000 to 4500 feet. Flowers March to July. Collected at Las Partidas, 3500 feet, June 2."

(Herbert H. Smith, Colombia, No. 1663.)

Forsteronia foliosa.

Inflorescence tomentellate. Branchlets slender, elongated, irregularly angled, the internodes 5 or 6 cm. long. Petioles about 1 cm. long, stout, deeply channeled on the thin margins, involute. Blades 7 to 12 cm. long, 3 to 7 cm. broad, ovate with rounded base and very shortly and acutely pointed, deep-green above, drying brownish beneath, feeling downy to the touch, but the indumentum imperceptible. Secondaries 8 to 10 on each side, lightly curved and obscurely connecting at some distance from the margin, connected by the tertiaries and by a very fine reticulum that is impressed on both surfaces. Panicle terminal (but one seen), 10 cm. long, including the peduncle, which is 3 cm. long, the width of the dense panicle 3.5 cm., the flowers not yet expanded, sessile. Calyx two-fifths the length of the bud, lobed nearly half way, the lobes broad with rounded summit.

Species very near to *F. mollis* Rusby, but undoubtedly distinct.

"Polo-Polo, near Corioco, Bolivia, 1100 M. altitude, November 11, 1912." (Otto Buchtien, No. 3876.)

Prestonia mucronata.

Ferruginous-pubescent throughout, the branches elongated and slender, terete, the internodes mostly shorter than the leaves. Petioles 12 to 15 mm. long, suberect, the blades spreading, 6 to 8 cm. long, 3.5 to 4.5 cm. broad, oval with rounded base and rounded mucronate summit, thickish, the venation slender, lightly prominent on both sides, more so beneath, the secondaries about 5 on each side, nearly straight, ascending. Flowering peduncle 6 or 7 cm. long, slender, the cyme about 6 cm. broad, rather densely flowered, the bracts small, subulate, the pedicels rather stout, shorter than the flowers. Calyx about 1 cm. long, equalling the corolla-tube, the lobes ovate, acumi-

nate. Corolla about 2 cm. broad, the lobes obovate, the crown conspicuous, 2 mm. long. Lobes of the disk ovate, obtuse, slightly exceeding the ovoid ovary. Anther 7 mm. long, narrowly acuminate and very acute.

"Twining to 10 or 12 feet. Occasional in damp somewhat open places in forest and in clearings near streams, 4,500 to 6,000 feet, flowering December to May. Collected at Las Nubes, 4,500 feet, December 18." (Herbert H. Smith, No. 1656.)

Prestonia robusta.

Glabrous except for a minute puberulence on the pedicels. Stems rather stout, sulcate when dried. Petioles nearly 1.5 cm. long, broad, the blades 8 to 16 cm. long, 6 to 12 cm. broad, nearly elliptical, the base slightly produced, very thick, the very slender venation inconspicuous, the principal veins mostly slenderly grooved, the principal secondaries about 8 or 9 on each side, almost divaricate, straight and branching at an acute angle, the finer, crooked venation more or less parallel with the secondaries. Peduncle very stout, more than twice the length of the petiole, several-flowered, the pedicels very short and stout. Calyx about 15 mm. long, very thick and coriaceous, the lobes ovate and acuminate. Corolla (but one imperfect seen) with a tube about as long as the calyx and the limb apparently about 1.75 or 2 cm. broad. Follicles of the pair unequal, the longer 16 cm. long, about 1 cm. broad, nearly straight, slightly narrowed upward, slightly thickened at the end, strongly striate; apparently immature.

"Tumapasa, 1800 feet, December 15, 1901, the flowers greenish." (R. S. Williams, Bolivia, No. 571.)

Prestonia gracilis.

Pubescent throughout, the stems very slender, sulcate. Petioles 6 to 8 mm. long, very slender, channeled above, the blades 6 to 8 cm. long, 2 to 3.5 cm. broad, lanceolate with rounded base and short-acuminate and acute summit, thin, the slender and sparse venation inconspicuous, crooked and loosely reticulate. Cymes corymbose, the peduncle 1 or 2 cm. long, slender, the very slender pedicels nearly as long as the flowers, and the longest bracts nearly as long as the pedicels, lanceolate, attenuate, striate. Calyx 15 mm. long, parted to the base, the divisions ovate, acuminate and acute, thin, hyaline, finely nerved. Disk 3 mm. long, almost equaling the ovoid obtuse ovary, the margin sinuately lobed. Scales of the calyx a third the length of the disk, broad and obtuse. Corolla-tube nearly twice the length of the calyx, the limb 1.5 cm. broad. Crown annulate, short, thick, the ligules linear, obtuse, thick-

ish and rigid, 3 mm. long, the anthers exserted and partly covered by the converging ligules.

"Twining to 6 feet. Rare in forest near Masinga, 250 to 500 feet. Flowers November to December, the corolla pale greenish-yellow. Collected November 18." (Herbert H. Smith No. 1644.) Also at Bonda, October 23.

Species very near to Eggers No. 5568.

Hemipogon (?) andinum.

Glabrous, the stems somewhat woody, erect or ascending, the branches erect, 3 or 4 dm. high, slender, densely leafy. Leaves 3 or 4-verticillate, 5 to 10 cm. long, acerose, sharply 3-ribbed beneath and channelled above, acute, erect. Peduncles lateral 3 or 4 mm. long, stout, erect, angled, 1 to 3-flowered. Pedicels shorter than the peduncle, erect, stout, sharply angled, bracteolate at the base. Flower 3 mm. long, erect. Calyx parted nearly to the base, the lobes a third or a fourth the length of the corolla, ovate, acute, thickish. Corolla-tube shorter than the limb, urceolate, inflated, obscurely angled, broader than long, the lobes erect, lance-linear, acute. Pod 2.5 to 4 cm. long, 6 to 8 mm. wide, stoutly lanceolate with somewhat contracted base and acuminate summit, brown, finely striate.

"Santa Ana, Bolivia, 5,500 feet altitude, July 31, 1902." (R. S. Williams, No. 1589.) No. 113, "From hillsides near Apolo, February 20", is apparently the same, with somewhat shorter leaves and pods.

I am very doubtful as to the generic affinity of this and the following species, but they appear more closely allied to this than to any other described genus.

Hemipogon (?) Williamsii.

Glabrous, the stems erect or ascending, 3 or 4 dm. high, slender, erect-branching, very leafy, the leaves opposite or in threes, 3 to 8 cm. long, narrowly linear, acute, erect, strongly nerved. Peduncles 3 mm. long, stout, angled, ascending, mostly 3-flowered, bracted at the summit. Pedicels shorter than the peduncles and similar to them, erect, stout, angled. Flowers about 5 mm. long, two-thirds as broad, yellowish-green, somewhat fleshy. Calyx parted nearly to the base, the lobes about 1 mm. long, ovate, acute, hyaline, not glandular within. Corolla-tube urceolate, inflated, obscurely angled, the limb nearly as long, 5-parted, the lobes erect and connivent, lanceolate, acute. Crown adnate, to the corolla-tube, its margin free in the throat, forming a thickened ring, which is short and irregularly sinuately lobed. Filament-tube shorter than the

anthers, which are hard and thickened on the back, the thickening yellow. Appendages none or minute. Corpuscle oblong, obtuse, the filaments from its base, somewhat elongated, the pollinia slenderly lance-ovoid. Pod 6 cm. long, narrowly lanceolate and long acuminate and acute, brown, nerved. Seeds comose.

Tumupasa, Bolivia, 2,400 feet altitude, January 12, 1902. (R. S. Williams, No. 488.)

Irmischia angustifolia.

Young stems, etc., sparsely puberulent. Stems very slender, the internodes nearly twice the length of their leaves. Petioles about 5 mm. long, very slender. Blades 2 to 3.5 cm. long, 5 to 10 mm. wide, lanceolate with rounded base and regularly acuminate and pungent summit, thin, deep-green, the venation prominent beneath, the secondaries about 6 on a side, strongly ascending, lightly curved, the remaining venation obscure. Peduncles shorter or longer than their leaves, filiform, the umbel densely few-flowered, the pedicels nearly twice the length of the flowers. Calyx 2 mm. long, thick, parted nearly to the base, the lobes ovate, obtuse. Corolla nearly twice the length of the calyx, the lobes oblong, obtuse, coarsely pilose on the face, recurved. Crown adnate to the corolla only, the 5 ligules alternate with the lobes, spatulate, blunt. Stamen-tube slightly elongated, a little longer than the anthers.

"Twining to 10 feet, in forest, in ravines. Jiracasaca, 2,500 feet, September 28. Var of 1676 (?)" (Herbert H. Smith, Colombia, No. 1677).

Species very close to 1676, but distinct in every floral character.

Irmischia aristata.

Lower leaf-surfaces, etc., minutely downy. Stems very slender, terete, striate. Petioles to 1.5 cm. long, very slender. Blades 3 to 5 cm. long, 1 to 2 cm. wide, ovate with rounded base and regularly acuminate and cuspidate summit, thin, deep-green, the very slender venation slightly prominent, the secondaries about 7 on a side, abruptly upcurved near the end, the remaining venation obscure. Peduncles filiform, half as long as the leaves or longer. Pedicels densely umbellate, filiform, nearly twice as long as the flowers. Calyx 1.5 mm. long, half the length of the corolla, lobed nearly to the base, the lobes ovate, obtuse, ciliate. Corolla parted nearly to the base, the lobes oblong, obtuse, obscurely pilose on the face, erect, the summits at length recurved. Ligules of the crown attached to the corolla and nearly equaling it, distant from the stamens, very narrow, and very acute. Stamen-tube more than half as

long as the corolla, narrow, the anthers short. Corpuscle oval, the pollinia narrowly oblong.

"A twining vine, to 20 feet, with white flowers, in edge of forest on mountain-side near Cacagualito, 1800 feet, January 5," the type. Also "on a hill 3 miles inland from Playa Brava, 500 feet, June 25." (Herbert H. Smith, Colombia, No. 1901.)

Philibertella filipes.

Glabrous. Stems very slender, terete, the internodes 12 to 15 cm. long. Petioles 2 to 3 cm. long, very slender, the bases connected by an interpetiolar line. Blades 5 to 7 cm. long, 3 to 4 cm. wide, ovate with deeply cordate base, the sinus narrow and the lobes over-lapping, and with abruptly acuminate summit, the point attenuate and very acute, pale-green, the venation inconspicuous, 2 or 3 pair of nerves radiating from the summit of the petiole. Peduncle about 5 cm. long, the flowers umbellate, numerous, the pedicels about 3 cm. long, very slender, subtended at the base by small lance-linear attenuate recurved bracts. Calyx 6 or 7 mm. broad, densely pilose within and explanate at the base and subtended by minute scales, shallowly toothed. Corolla of nearly distinct petals, which are about 8 mm. long, lanceolate, obtuse. Outer crown saucer-shaped, membranaceous, the margin entire, adnate only to the corolla, the inner of the 5 obovate erect scales exceeding the stamens, thick, fleshy, pilose within and with rounded summits. Anthers strongly winged and minutely appendaged. Stigma large, discoid, 5-angled, the summit minutely 2-lobed. Corpuscle broadly ovate, obtuse, the filament thick and short with two projections on the lower side, the pollinia oblong, pendulous.

"Twining to 10 feet. Occasional in thickets on swampy land or along streams below 1,500 feet; November, the flowers whitish. Collected near Bonda, 150 feet, November 24." (Herbert H. Smith, Colombia, No. 1669.)

Philabertella ovalifolia.

Glabrous. Stems slender, finely sulcate as dried, greenish, the internodes about 10 to 12 cm. long. Petioles about 5 mm. long, broad, channeled above like the midrib. Blades 4 to 6 cm. long, 2.5 to 4 cm. broad, oval with abruptly very short-acuminate base and mucronulate summit, pale-green, thickish, the venation inconspicuous, the very slender secondaries 7 or 8 on each side. Umbels sessile, many-flowered, the pedicels 1.5 cm. long, filiform, subtended by very small linear bracts. Calyx parted to the base, the lobes 1 mm. long, lanceolate, acuminate and acute. Corolla parted nearly to the base, the lobes 6 mm. long, oblong, obtuse, very thin. Outer crown very short,

adnate to both corolla and androecium, the inner of 5 ovate obtuse erect hyaline scales a little exceeding the stamens. Pollinia minute.

"Twining to 15 feet, the flowers white. In a forest near a stream, 5 miles south of Mamateca, 250 feet, January." (Herbert H. Smith, Colombia, No. 1683.)

No. 1682, from Cienago, September 11, is the same. Its fruit is 9 cm. long, 1.5 cm. thick, lanceolate and long-acuminate, glabrous.

Stenomeria tomentosa.

Densely ferruginous-tomentellate. Branchlets stout, terete, very leafy. Petioles about 5 mm. long, stout, sub-terete, the bases connected by an interpetiolar line. Blades 2 to 4 cm. long, 12 to 20 mm. wide, oval with rounded base and very abruptly acuminate and cuspidate summit, thick and fleshy, yellowish, the margin revolute, the venation lightly impressed above, scarcely prominent beneath. Spikes axillary, mostly longer than the leaves, bearing the sessile flowers fascicled at the nodes, and about 1 cm. apart. Calyx parted to the base, thin, the lobes scarcely 1 mm. long, ovate, acute. Corolla 6 or 7 mm. long, parted more than halfway, the tube narrowly campanulate or cylindraceous, the lobes linear. Scales of the crown adnate to the base of the stamen-tube, very small, half the length of the stamens, ovate, acuminate, hyaline. Style 3 mm. long, inclusive of the branches, bifid a third of its length, the branches somewhat spreading.

"A vine in the forest of Minca, 2,000 feet, June 14" (Herbert H. Smith, Colombia, No. 1523). Apparently the same as Jenman's No. 7087.

Species extreme, in its tomentum and its bifid style.

Metastelma (§ **Eumetastelma**) **atrovirens.**

Glabrous. Stems slender, the leaves much crowded in places, distant in others. Petioles 3 to 6 cm. long, narrowly channeled above, almost imperceptibly puberulent. Blades 1.5 to 2.5 cm. long, 9 to 10 mm. wide, elliptical, sub-cordate at the base and mucronulate at the summit, the margin revolute, thickish, drying brown, the lower surface minutely downy under a strong lens, the venation not prominent, the secondaries 6 on a side, spreading, somewhat crooked, upcurved at the ends, the remaining venation obscure. Fascicles subsessile, many flowered. Pedicels shorter than the flowers, minutely bracteolate at the base. Calyx 1.5 mm. long, thin, green, lobed nearly to the base, the lobes ovate, obtuse. Corolla 7 or 8 mm. long, divided nearly to the base, the lobes linear-oblong, obtuse, the

scales on the face reflexed. Crown slightly exceeding the stamens, the ligules erect, linear, very thin. Anther appendages narrow, strongly inflexed. Corpuscle oval, obtuse, the thickened filaments attached to the very base, the pendulous pollinia very small. Stigma 5-lobed, the lobes oval, strongly deflexed and adnate.

"In dry thickets back of sandy coast, Playa Brava, June 6. Abundant and flowering freely." (Herbert H. Smith, Colombia, No. 1680.)

Metastelma pallidum.

Sparsely and very minutely puberulent. Stems slender, much branched, the branches divaricate and somewhat recurved. Petioles to 6 mm. long, slender, narrowly margined. Blades 3 to 5 cm. long, 1 to 2 cm. wide, with the rounded base very abruptly and shortly produced and with acuminate and pungent summit, thin, very pale, the venation slender, slightly prominent on both sides, sub-trinerved, the other secondaries about 5 on a side, spreading and connecting with the basal pair in a wavy line some distance from the margin. Pseudoracemes very shortly peduncled, loosely few-flowered, the pedicels about three times the length of the flowers, minutely bracteolate at the base. Calyx 1.5 mm. wide, the rotate corolla 4 mm. wide. Calyx-lobes ovate, obtuse, thin. Corolla-lobes obovate. Crown closely adnate to the base of the stamens, the lobes very short, 3-toothed. Corpuscle narrow, the filaments short, thick. Stigma 5–lobed, the lobes oblong.

"A twining vine, to 15 feet, with white flowers. In thickets on a ridge near Cacagualita, 2,000 feet, January 10. Also collected in December" (Herbert H. Smith, Colombia, 1900.)

Metastelma (§ **Eumetastelma**) **ovatum.**

Glabrous. Stems slender, terete, finely nerved, leafy. Petioles to 2.5 cm. long, very slender. Blades 3 to 5 cm. long, 1.5 to 3 cm. wide, ovate with broad rounded base and acuminate, cuspidate, pungent summit, pale-green, thin, the venation slender, lightly prominent on the lower surface, the secondaries 7 or 8 on a side, the ends upcurved and obscurely connecting. Peduncles slender, longer than their petioles, the flowers umbellate, rather numerous, the filiform pedicels about twice the length of the flowers. Calyx about 1.5 mm. broad, divided nearly to the base, the lobes ovate, acute. Corolla rotate, 3.5 mm. broad, parted nearly to the base, the lobes ovate, obtusish, bearing a row of scales near each margin. Ligules of the crown very little longer than the stamens, narrowly linear, acute, the upper half abruptly turned outward and replicate. Corpuscle linear. Follicle 7 cm. long, 4.5 mm. wide, long-attenuate and slightly curved.

"A twining vine, to 6 or 8 feet, with white flowers; moderately common in dry thickets and forests below 2,000 feet, July-August or later. Collected near Bonda, 150 feet, July; the fruit in August." (Herbert H. Smith, Colombia, No. 1676.)

Tassadia recurva.

Glabrous. Stems slender, terete, the internodes about half as long as the leaves. Petioles 5 or 6 mm. long, slender, channelled, the blades 4 to 7 cm. long, 2 to 2.5 cm. broad, lanceolate with rounded base and somewhat abruptly acuminate apiculate summit, thickish, deep-green, the venation slender, sparse and obscure. Panicles axillary and terminal, elongated, slender, sparsely branched and flowered, the branches and inflorescence subtended by small, subulate, brown bractlets, the flowers 5 to 10-fascicled or umbelled, the pedicels slender, about twice as long as the flowers, which are 3 mm. broad, when fully expanded. Calyx-lobes about equalling the saucer-shaped tube, ovate, obtuse, each bearing a linear scale within, near the base. Corolla deeply parted, the lobes lance-linear, strongly recurved, obtusish, a dark spot near the base. Dorsum of the narrow lobes of the crown keel-like. Appendages of the anthers ovate, hyaline. Corpuscle linear-oblong, the pollinia narrowly ovoid, pendulous on long slender filaments.

"Twining to 20 feet. Rare in mountain forest, 1,500 to 3,500 feet. Collected at Las Partidas, 3,500 feet, March 15, and Minca, 2,000 feet, June 1. (Herbert H. Smith, Colombia, No. 1621.)

No. 1620, from "damp forest between Calavasa and Cacagualita November 15," is the same.

Ditassa mandoni.

Densely pilose with short, white divergent hairs. Stems slender or stoutish, terete, sharply nerved. Petioles 3 or 4 mm. long, stoutish. Blades 2 to 4 cm. long, 6 to 12 mm. wide, lance-oblong, with rounded base and summit, the latter short-aristate; thickish, dark-green, the margins inclined to turn back, the secondaries 12 to 15 on a side, widely spreading, nearly straight. Peduncles 3 to 5 mm. long, and about equaling the pedicels, or a little longer, the flowers 5 to 10. Calyx parted to the base, the lobes 1 mm. long, ovate, acute. Corolla rotate, 6 mm. long, parted nearly to the base, thickish, the lobes lance-ovate, obtusish, tomentellate within. Crown adnate to the base of the stamens, twice the length of the stamens, the scales hyaline, nearly distinct, the inner two-thirds the length of the outer, acuminate, the outer long-attenuate. Corpuscle

oval, the filaments somewhat thickened, the pollinia ovoid, rather large.

Apolo, Bolivia, 4,800 feet, April 20, 1902. (R. S. Williams, No. 2453.) The same as Mandon's No. 354, distributed as *D. lanceolata* Decne.

Schistogyne pentaseta.

Young stems and flowers minutely gray-downy, the lower leaf-surfaces sparsely puberulent. Stems slender, terete. Petioles at length 12 mm. long, and recurving, channelled above, slightly dilated at the base. Blades 3 to 5 cm. long, 1 to 2 cm. broad, ovate with deeply cordate base, the sinus narrow or closed, the lobes rounded; the summit regularly acuminate and acute; thin, bright-green, the venation prominent on both surfaces, 2 or 3 pair of short, slender nerves radiating from the summit of the petiole, the slender secondaries 3 or 4 on each side, the finer slender venation loosely reticulate. Peduncles shorter than their leaves, slender, terete, ascending, few flowered. Calyx parted to the base, the lobes 5 or 6 mm. long, lanceolate, attenuate. Corolla-tube campanulate, broad, 4 mm. long, the lobes 7 mm. long, narrow, regularly acuminate from the base. Ligules of the crown linear, erect, as long as the androecium. Stigmatic appendages 5, nearly 1 cm. long, filiform and attenuate, from the outer side of a broad, fleshy brown, discoid body which is a little longer than the stamen-column.

Specimen unique. Collected in Yungas, Bolivia, by M. Bang, without data.

Near *S. attenuata*, Rusby, but the stigmatic appendages are green and of a different form.

Amphistelma leptocarpa.

Glabrate. Stems very slender, terete. Petioles 5 to 7 mm. long, very slender. Blades 3 to 5 cm. long, 7 to 10 mm. wide, lanceolate with acute or obtuse base and regularly long-acuminate and acute summit, thickish, deep-green, sparsely and almost imperceptibly puberulent, the venation slightly prominent beneath, the secondaries 6 to 10 on a side, strongly ascending, the lower sub-erect. Fascicles sessile, few-flowered, the pedicels at length 6 to 8 mm. long, subulate-bracteolate at the base. Calyx 3 mm. broad, lobed nearly to the base, the lobes triangular-ovate, acute, very thin Corolla 8 mm. broad, lobed two-thirds of the way, the lobes ovate, acutish. Crown about equaling the stamens, thin and hyaline, adnate to the base of the stamens, campanulate, 5-lobed, the lobes broad, truncate, the margins erose and the summit short-fimbriate. Pollinia very small. Pod 10 cm. long, 4 mm. wide, lanceolate, long-acuminate or attenuate, glabrous.

"Twining to 5 or 6 feet, the flowers white. Common in a damp clearing, Sierra del Libano 6,000 feet, January to April. Collected January 23." (Herbert H. Smith, Colombia, No. 1679.)

Vincetoxicum (Cynoctonum) acutissimum.

Glabrous. Stems slender, terete. Petioles 1 to 2 cm. long, slender. Blades 5 to 10 cm. long, 2 to 3.5 cm. broad, ovate with rounded base and somewhat abruptly acuminate and acute summit, thin, bright-green, pale beneath, the venation obscure, very coarsely reticulate. Flowers in two's, the peduncle extremely short, the pedicel about 3 mm. long, stout. Calyx parted nearly to the base, the lobes 6 mm. long, lance-linear, acutish. Corolla 2.5 cm. broad, lobed two-thirds of the way, rotate, the lobes oval or sub-rotund, purplish, with handsome dark veins. Crown coarsely pilose externally, saucer-shaped, 7 mm. broad, membranaceous, the margin sinuate and denticulate. Corpuscle ovoid, acuminate and acute, the filament thick, the pollinia ovoid, large, pendulous.

"A vine, near Las Partidas, in the edge of the forest, about 3,500 feet, March 10." (Herbert H. Smith, Colombia, No. 1646.)

Marsdenia ecorpuscula.

Yellowish-gray-tomentellate throughout. Branches slender, terete, twining. Petioles 2.5 to 4 cm. long, broadly and shallowly channelled, striate. Blades 5 to 10 cm. long, and almost equally broad, ovate, strongly cordate, the sinus broad, open and rounded, the lobes rounded, the summit abruptly short-pointed, the point broad, acutish, the venation not prominent, broad and weak, purplish, the principal secondaries 4 or 5 on a side, one pair from the summit of the petiole, all much-branched, the branches interarching near the margin, the remaining venation loosely reticulate. Peduncles 1.5 cm. long, stout, the pedicels much shorter, stout, lanceolate-bracted at the base, the bracts foliaceous. Calyx campanulate, parted nearly to the base, 10-glandular within, the lobes 5 mm. long, lance-linear, obtuse, erect. Corolla-tube cylindraceous, stout, a half or more longer than the calyx, tomentose like the lobes, annulate at the mouth, the lobes spreading or recurved, fleshy, short, broad, and rounded. Crown of 5 thick, fleshy, purple scales more than half the length of the stamen-tube, each bearing a linear, oblong, short appendage at the summit. Anthers with hyaline inflexed rather large appendages. Stigma rounded, a little exceeding the anthers. Pollinia large, ovoid, free, there being no corpuscle or filaments.

"Leaves variable in shape on the same plant, often not cordate, the flowers crimson or crimson-brown, of variable

tint, the edges of the lobes green, and the corolla green externally. Rare in clearings near Mameteca, below 1,500 feet, May and June. Collected June 3." (Herbert H. Smith, Colombia, No. 2094.)

Species unique in the distinct pollinia, but certainly a *Marsdenia*.

Marsdenia inelegans.

Young leaf-surfaces minutely puberulent underneath. Branches twisted, terete, striate. Leaves 5 to 7 cm. long, including the petiole-like base, 3 to 5 cm. broad, broadly oval or rotund, abruptly contracted into a narrowly cuneate base about one-fourth of the total length and with a very abruptly short-pointed acute summit, the principal veins slightly prominent above, the secondaries 5 or 6 on each side, widely spreading, little curved but crooked and bifurcating toward the end. Peduncle (but one seen) 1 cm. long, with a lance olate foliaceous bract at the base and bearing 2 umbels, about 2 cm. broad, the pedicels 3 or 4 mm. long, stout, angled, thickened upward. Expanded calyx 5 mm. broad, divided nearly to the base, the lobes ovate, obtuse. Corolla-tube hemisphèrical, about 4 mm. broad, the lobes about half of its length, recurved, obtuse. Crown of 5 purple, fleshy, concave appressed obtuse scales, as long as the stamen-column. Anthers with 5 short, triangular, obtuse, hyaline inflexed appendages. Stigma small, circular, depressed. Pollinia pear-shaped, the filaments erect, then incurved, dilated near the corpuscles and less so near the pollinia.

"Twining to 20 feet, the corolla greenish-brown. Rare in dry forests and thickets below 1000 feet. May to June. Collected 3 miles S. E. of Bonda, 500 feet, May 30." (Herbert H. Smith, No. 2296.)

Marsdenia asclepioidea.

Glabrous, stems slender, terete. Petioles 2 to 3 cm. long, deeply channelled above. Blades 10 to 20 cm. long, 5 to 10 cm. broad, ovate, with rounded base and abruptly short-pointed obtusish summit, thin, drying brown, the venation rather coarse, not prominent, the secondaries 8 or 10 on a side, stout, spreading, then strongly falcate and connecting near the margin, between them one or more minor ones, the remaining venation loosely branching. Peduncles shorter than their leaves, mostly much shorter, slender, the flowers umbellate, the umbels many-flowered, the pedicels about 3 cm. long, slender. Calyx 1 cm. or more broad, parted nearly to the base, the lobes broadly ovate, obtuse, papillose externally with broad smooth margins, not glandular within. Corolla campanulate, later

rotate, thick, fleshy, purple, pilose within, parted nearly to the base, the lobes 8 or 9 mm. long, broadly ovate, obtuse. Crown of five thick, fleshy, purple, concave scales attached closely to the stamens and of about equal length, the anthers with short, erect, triangular, hyaline appendages. Stigma plane. Pollinia ovoid, attached by short, thick filaments to a heart-shaped corpuscle, with acute summit.

"Twining to 40 feet, the corolla white with greenish zone around the throat. Occasional in damp forest, 4,000 to 5,000 feet. Collected at Valparaiso, 4,500 feet, February 26." (Herbert H. Smith, Colombia, No. 1667.)

Phaeostemma grandifolia.

Ferruginous-hirsute, the hairs variously curved; branches stout; petioles 7 cm. long, stout; blades 20–30 cm. long, 10–15 cm. broad, oval, lightly cordate, acute, thin, sparsely pilose with coarse hairs; pedicels 12–30 mm. long, stout, very hirsute, like the calyx. Calyx parted nearly to the base, the lobes 12 mm. long, 6 mm. broad, lanceolate, acuminate; corolla about 4 cm. broad, purple-veined and finely white-spotted, lobed two-thirds of the way, the lobes broadly oval-ovate, blunt, the sinuses narrow; crown dark-purple, 8 mm. broad, sinuately 5-lobed; anther appendages incurved, white-floccose on the face; seeds 8 mm. long, 6 mm. broad, obovate, thick, the margin coarsely toothed; coma very fine and white.

"Fruit 6 inches long, smooth; Charopampa, 1,600 feet, September 22, 1901" (R. S. Williams, No. 797).

Gonolobus Squiresii.

Glabrous. Stems very slender. Petioles 6 to 8 mm. long, slender, flattened. Blades 3 to 6 cm. long, 1 to 2 cm. broad, lanceolate, with acute base and acuminate and acute summit, thickish, pale-green, the venation not prominent, the secondaries 3 or 4 on a side, crooked, forking below the middle, and connecting distantly from the margin, the remaining venation obscure. Peduncles extremely short, one or two flowered, the pedicels extremely short. Calyx 3.5 mm. broad, divided to the middle. the lobes ovate, obtuse, greenish with purple tips. Corolla 6 mm. broad, smooth, yellowish, divided two-thirds of the way, the lobes ovate, obtuse. Crown short, thin, greenish, 5–lobed. Stigmatic disk short-stipitate, a little more than 1 mm. broad, purple, lightly 5-angled and slightly 5-grooved.

Rusby and Squires, Lower Orinoco, Venezuela (No. 294).

Gonolobus attenuatus.

More or less pubescent throughout, the younger stems pilose with coarse yellow divaricate or reflexed hairs. Stems very

slender, terete. Petioles 1.5 to 3 cm. long, slender. Blades 6 to 10 cm. long, 2 to 3.5 cm. broad, lanceolate with deeply cordate base, the sinus narrow, the lobes rounded or with an obscure angle, and with long-attenuate summit, thin, bright-green above, gray beneath. Flowers apparently solitary in the axils, scarce. Pedicels 1.5 cm. long, filiform. Calyx parted to the base, the lobes 2 mm. long, lance-linear. Corolla 9 mm. broad, deeply parted, hirsute without and puberulent within, thin, green, the lobes ovate, obtusish. Crown 3.5 mm. broad, thick, fleshy, purple, lightly sinuately lobed. Stigma 2 mm. broad, deep purple, shallowly sinuately lobed.

Specimen unique, collected in Bolivia by M. Bang without number or data.

Probably from near Cochabamba.

Gonolobus leucodermis.

Younger portions sparsely pubescent. Stems slender, the internodes mostly twice as long as their leaves. Petioles 8 to 12 mm. long, rather broad, channelled above, somewhat dilated at the base. Blades 5 to 8 cm. long, 3 to 5 cm. broad, ovate with rounded base and mucronate summit, thickish, very pale-green, the venation lightly prominent on both surfaces, and sparsely puberulent on the upper, the secondaries 5 to 7 on a side, moderately ascending, sharply falcate at the ends, the venation coarsely reticulate. Flowers sub-umbellate, the umbels very shortly pedunculate, the peduncle subtended by a small ovate bract, 5 to 8-flowered, the pedicels unequal, slender, sharply angled, the longer twice the length of the flowers. Calyx 5 mm. broad, lobed two-thirds of the way or more, the lobes ovate, acutish. Corolla 1 cm. broad, lobed three-fourths of the way, the lobes ovate, acutish, thin, green. Crown very short, annulate, nearly entire, thickish. Stigma purplish 1.5 mm. broad, strongly 5-sulcate on the tip and slightly 5-lobed on the recurved margin. Corpuscle broadly ovate, obtuse, the filament thick, curved, horizontal, the pollinium broadly oval, sub-pendulous, the base hyaline.

Specimen unique, collected by M. Bang, in Bolivia, without number or data. Probably from near Cochabamba.

Maripa acuminata.

Inflorescence, etc., finely ferruginous tomentose. Stems twining, stoutish, terete, the internodes mostly 5 or 6 cm. long, shorter than their leaves. Petioles 1 to 2 cm. long, the blades 4 to 8 cm. long, 2 to 3 cm. broad, ovate, the rounded base shortly and narrowly cordate, the summit acuminate and mucronate; entire, thick, glabrous above, where the midrib is slightly channelled and the finely reticulate venation is prominent,

underneath finely puberulent, or at length becoming nearly glabrous. Flowers in a small terminal panicle and in the upper axils, the latter in threes on a peduncle shorter than its petiole. Pedicels mostly longer than the calyx, subulate-bracted at the base, the bracts attenuate. Calyx about 5 mm. long and broad, cupulate, the sepals broadly elliptical, the outer densely ferruginous, the inner slightly so and purple. Tube of corolla about as long as the calyx, the campanulate limb a little more than twice as long, coarsely pilose externally. Stamens included. Style persistent, filiform, a little shorter than the corolla, its branches about a third of the total length, the purple stigmas capitate, large.

"A twiner, to 20 feet. Rare in borders of forest below 1000 feet. Specimen collected 5 miles south of Mamatoca, at about 800 feet, November 21." (Herbert H. Smith, Colombia, No. 877.)

Maripa repens.

Lower leaf-surfaces very minutely and sparsely puberulent. Stems elongated, terete, creeping in mud which is at times inundated, the few ascending branches sparsely leafy. Petiole 2 cm. long, weak, narrowly margined, the blades 1 to 1.5 dm. long, 4 to 6 cm. broad, thin, oval, with cuneate base, the summit not seen, entire, the midrib very slenderly sulcate above, sharply prominent beneath, the principal secondaries about 8 on a side, falcately ascending and disappearing in the margin, the remaining venation inconspicuous. Peduncle lateral, short and stout, the panicle short, broad, loosely flowered, the bracts very small, broadly ovate, acute, thick and rigid. Pedicels a little longer than the calyx, stout, striate. Flower 2.5 cm. long, the calyx a fourth of its length, the sepals equal, rounded at the ciliate summit, thick and rigid, minutely muricate, the corolla narrowly campanulate, lobed more than a third of the way, the lobes sericeous, ovate, obtuse. Stamens equal, 1 cm. long, the filament filiform, a little longer than the anther, which is short-auriculate at the base. Style about equaling the stamens, entire, the stigma large, broader than long, its base cordate.

Collected by Rusby and Squires at Sacupana, lower Orinoco, Venezuela, without number. Plant creeping in clay soil, along a river-bank.

Ipomoea hilarifolia.

Glabrous. Branches striate and lightly sulcate. Petioles 3 to 5 cm. long, slender, the blades 2.5 to 4 cm. long from the petiole to summit, 2 to 5 cm. broad, exclusive of the basal lobes, ovate with abruptly short-acuminate summit and cordate base, the basal lobes more than half the length of the body, broadly

ovate, acuminate and acute, directed downward or outward, the margin entire or more or less sinuate, occasionally somewhat dentate; thin, the slender venation slightly prominent beneath, the principal secondaries about 5 on each side, the two lower pair from the summit of the petiole. Peduncles crowded at the ends of the branchlets, very short and stout, bifid, the branches several flowered, bearing several pairs of small subulate bracts. Pedicels 2 cm. or more long, slender, the calyx 12 mm. long, the sepals light-brown with scarious margins, strongly 5 to 7-ribbed, sharply mucronulate, the inner somewhat shorter. Corolla pink, 5 cm. long, broadly campanulate, the lower half infundibular, the mouth .5 cm. broad, as pressed. Largest stamens 2.5, shortest 1.5 cm. long, the filaments very slender, the anthers 3 mm. long, linear, obtuse, the base short-sagittate, the lobes obtuse. Style filiform, shorter than the longest stamens, the stigmas 2, sub-rotund, each nearly 1 mm. broad.

"Twining to 5 or 6 feet, in thickets by the seashore at Nequanga, April 4, the corolla light-rose or rose-purple." (Herbert H. Smith, Colombia, No. 2109.)

Cordia carnosa.

Very finely scabrous, the lower leaf-surfaces softly tomentellate. Branchlets slender, flexuous, widely spreading, angled or striate. Petioles about 6 mm. long, broad, channelled above, the blades 10 to 15 cm. long, 5 to 7 cm. broad, ovate with rounded and mostly inequilateral base and abruptly acuminate and acute summit, entire, fleshy, the slender midrib and secondaries prominent on both sides, the principal secondaries about 5 or 6 on each side, strongly ascending, slightly falcate at the base, the venation finely reticulate. Cymes short, broad and loose, the flowers about 5 mm. long. Calyx campanulate, lobed about one third of the length, the lobes ovate, erect, obtuse. Corolla-tube about as long as the calyx, lobed about half-way, the lobes ovate, obtuse. Stamens included, attached at the sinuses, the filaments very short. Ovary obovoid, subtruncate, or rounded at the summit, about as long as the style, which is 4-fid nearly half way, the stigmas large, capitate. Fruit not seen.

Lower Orinoco, Venezuela, 1896 (Rusby and Squires, No. 418).

Cordia opaca.

Shortly and finely strigose, the hairs of the stem divergent, more or less ferruginous on the younger portions. Petioles about 1 cm. long, stout, broadly channelled above. Blades 12 to 18 cm. long, 3 to 6 cm. broad, regularly lanceolate with obtuse base and short-acuminate and acute summit, entire,

thick, deep-green, the slender venation prominent beneath, the principal secondaries 10 or 12 on each side, falcate and strongly ascending, the venation coarsely reticulate. Cymes small, short and broad, stoutly peduncled, the flowers sessile, about 5 mm. long. Calyx turbinate, sulcate, lobed about one-fourth of the way, the lobes ovate, obtuse, unequal. Corolla-tube cylindraceous, about as long as the calyx, the lobes half as long, obovate, recurved. Stamens attached at the summit of the tube, shorter than the corolla. Ovary two-thirds the length of corolla-tube, oval or slightly broader above, short-pointed. United portion of style about as long as the ovary, the two branches again dividing into two at their middle portion. Fruit globose, 1 cm. thick, obtusely 10-ribbed or sulcate, somewhat fleshy, black, glabrous.

"A forest tree, said to grow to 40 feet. Specimens collected from a rattoon. Corolla white. Valparaiso, 4500 feet, February 25." (Herbert H. Smith, Colombia, No. 1872.)

Cordia subtruncata.

Densely strigose throughout. Stems shrubby, the branchlets rather short and slender, flexuous, terete, the internodes mostly much less than half the length of the leaves. Petioles 1 to 3 cm. long, slender, sub-terete, very slightly channelled above. Blades 4 to 8 cm. long, 2.5 to 5 cm. broad, ovate with the base varying from rounded to truncate or even slightly cordate, mostly a little oblique and abruptly and very slightly produced into the petiole. acuminate and acute at the summit, unequally dentate-serrate, both the teeth and the sinuses acute, the venation prominent beneath, the secondaries about 5 on each side. Heads one to three at the ends of the branchlets, slenderly peduncled, spherical, dense, 1.5 to 2 cm. broad. Calyx-tube 3 mm. long, turbinate, sulcate, strigose like the filiform teeth, which are rather longer than the tube and nearly as long as the corolla. Tube of corolla cylindraceous, slightly enlarged above, and nearly as long as the limb, which is campanulate with sinuate margin. Stamens adnate to the base of the limb, shorter than the corolla. Style filiform. about as long as the stamens, the branches nearly half as long as the united portion. Ovary oblong-ovoid, 2 mm. long, pilose, with a persistent beak from which the style separates. Disk small, annular, lightly lobed.

"A shrub, 3 to 8 feet. Occasional in dry thickets below 500 feet, especially near the seashore. Flowers white. Collected on plains near the seashore at Cienaga, September 12; also near Bonda, August 24." (Herbert H. Smith, Colombia, No. 583.) The same as Glaziou's No. 15273.

Bourreria viridis.

Young portions minutely scabrous, the branchlets weak and slender, terete. Petioles about 1 cm. long, narrowly margined. Blades 1.5 to 2 dm. long, 5 to 7 cm. broad, ovate with acute base and abruptly short-acuminate and acute summit, entire, thin, minutely scabrous, the venation strongly prominent beneath, very slightly so above, the principal secondaries about 10 on each side, slender, falcate and strongly ascending. obscurely anastomosing at the margin, the venation finely reticulate. Cymes slenderly peduncled, loose and open, the calyx about 6 mm. long, campanulate, shortly lobed, the flowers not developed. Fruiting calyx rotate at base of fruit, nearly 1 cm. broad, the margin sinuate. Fruit 12 mm. long, two-thirds as broad, ovoid, acute, obscurely costate, flattened on one side, the wall very thick and bony.

Lower Orinoco, Venezuela (Rusby and Squires, No. 259).

Tournefortia macrostachya.

Harshly yellowish-tomentose throughout. Arborescent, the branchlets long, slender and flexuous, some of the leaves attaining a length of 4 dm. and a breadth of 2 dm., the petiole about a fifth of the entire length, very stout, channeled above, the blades ovate with rounded or broadly and shallowly cordate base and short-pointed and acute summit, entire or minutely erose-dentate, thin, dark yellowish-green. Inflorescence two or more times dichotomous, the branches 2 or 3 dm. long, loosely spreading, slender, stoutly peduncled, loosely-flowered, the flowers secund, about 6 mm. apart, sessile or nearly so, becoming pedicelled in fruit. Calyx-tube hemispherical, 2 mm. broad, the erect teeth about as long as the tube, subulate and attenuate. Corolla thick and tough, nearly 1 cm. broad, the tube slightly exceeding the calyx, stout, the middle portion dilated, pilose and rugose within, the lobes sub-rotund, finely nerved, reflexed. Anthers sessile at the middle of the tube, nearly 3 mm. long, tapering regularly from the broad base to the acute summit. Fruits alternating upon the rachis, strongly recurved, the pedicels about 3 mm. long, stout, the fruits about 6 mm. long and not so broad, the calyx teeth about two-thirds of their length.

"A tree, to 12 feet. Rare in abandoned clearings, Sierra del Libano, 6000 feet, January 21. Flowers white." (Herbert H. Smith, Colombia, No. 1865.)

Coldenia aggregata.

Densely setose-hispid throughout. Stems woody, prostrate, densely branching, 1.5 dm. or more long, the branches densely fasciculate-leafy. Leaves 5 mm. long, of which the lower 2

mm. is narrow and petiole-like, the upper portion ovate, strongly revolute, obtuse, obscurely crenate, thick. Calyx thick and rigid, 3 mm. long, divided about half-way, the tube ovoid, strongly 5-costate, the lobes 5, somewhat unequal, ovate, acute and pungent. Corolla not found. Ovary ovoid, 2-lobed, the lobes obscurely 2-lobed. Style 2.5 mm. long, slender, parted more than half way, the remainder not readily divisible. Nutlets 2, or when 4, two of them smaller, nearly 1 mm. long, oblong, lightly curved, black, shining.

"Payta, Peru, on shore, July 25, 1901." (R. S. Williams, No. 2913.)

Coldenia elongata.

Densely gray-pilose with spreading hairs and slightly hispid. Petioles to 7 mm. long, rather stout. Blades to 7 mm. long, 4 mm. wide in the dried state, with the margins strongly revolute, oval-ovate and obtuse at both ends, pinnately lobed, the lobes about 5 on each side, ovate, obtuse, thick and rigid, concave beneath. Flowers densely massed on the short-branchlets, the masses leafy. Flowers sessile. Calyx 5 mm. long, five-cleft nearly to the base, the divisions linear, deep-green with a dense and long indumentum. Corolla lobed about half way, the tube campanulate, 1.5 mm. long, the lobes broad and rounded. Stamens 5, sub-equal, the anthers very short, filiform, inserted into the upper part of the tube, the anthers included, large, broadly oval, attached at about the middle of the back, versatile. Ovary very small, depressed, 4-lobed, the style exserted, the lower two-thirds stout, the upper third slender, tapering, the small stigma minutely 2-lobed, but separable below. Nutlets spheroidal, 0.5 mm. broad, brown, smooth and shining.

"Dry hillsides, Yura, Bolivia, 8,400 feet, August 10, 1901." (R. S. Williams, No. 2562.)

Coldenia sps.

No. 2521, from Arequipa, Peru, 7,500 feet, which is smaller in every way except as to its larger, black nutlets, is probably distinct, but I am unable to find any flowers in proper state for dissection.

Aegiphila stricta.

Inflorescence minutely puberulent. Branchlets slender, straight, obtusely angled and shallowly sulcate, the internodes 3 to 5 cm. long. Petioles 8 to 10 mm. long, sub-erect, the lower portion sharply keeled, annulate at the base, Blades 5 to 8 cm. long, 2 to 4 cm. broad, oval or slightly obovate, abruptly and very shortly produced into the petiole, abruptly contracted

into a short, broad, acute terminal acumination, entire, bright-green, thin, the slender venation lightly prominent underneath, the secondaries about 7 on a side, strongly falcately ascending. Cymes axillary, 2 to 4 cm. broad, on very slender peduncles 1.5 to 3 cm. long, loosely flowered, minutely subulate-bracted. Pedicels about as long as the calyx, slender, the calyx-tube campanulate, about as long as the limb and a third as broad, dark-colored, the limb pale-green, broadly campanulate, about 2 mm. broad, shallowly lobed, the lobes erect, broadly ovate, rounded. Exserted portion of dark-purple corolla-tube about as long and broad as the calyx-tube, the limb campanulate, 5 mm. broad, lobed nearly to the base, the lobes broadly oval with rounded summit, erect, exceeding the stamens. Style much shorter than stamens, divided more than half way. Fruit not seen.

" A shrub or dwarf tree, to 6 feet in a clearing at Cacagualito 1500 feet, August 9." (Herbert H. Smith, Colombia, No. 330,- in part.)

Aegiphila stricta, var (?)

Inflorescence minutely cinereous, the branchlets stout, straight, coarsely angled, the internodes 5 or 6 cm. long. Petioles 8 to 12 mm. long, winged, and channelled and annulate at the base, the blades 5 to 10 cm. long, 2 to 4 cm. broad, abruptly produced into the petiole, and abruptly contracted into a short, broad, acute acumination at the summit, thin, the venation lightly prominent beneath, the secondaries 8 to 10 on each side, strongly falcately ascending, Cymes 3 or 4 cm. broad, loosely flowered, on slender peduncles 2 or 3 times as long as their petioles, shortly subulate-bracted and bracteolate. Pedicels very short, about as long as the calyx. Calyx-tube turbinate, broadening gradually into the campanulate limb which is about as broad as the length of the calyx. Corolla-tube at length 7 or 8 mm. long, the lobes 3 mm. long, broadly oval with rounded summit. Stamens long exserted. Fruit black, 6 mm. broad and not so long.

"In thickets by the seashore near the mouth of the Buritaca River, attaining a height of 10 or 12 feet. Corolla yellowish-white, berry red." (Herbert H. Smith, Colombia, No. 330.)

Sent by Mr. Smith as the same as the last, and under that number, but differs in more slender corolla and long exserted stamens.

Lippia subterranea.

Gray, with closely appressed hairs, suffrucicose, the thick, short woody stems rooting and creeping in the sand, and pro-

ducing a great many fibrous roots. Branchlets erect, 1 to 3 cm. high, densely matted, stout, the leaves densely imbricated, sessile 1.5 to 2 cm. long, 3 to 6 mm. broad, oblanceolate with long-acuminate base and obtuse summit, the upper portion incisely serrate, about 3 teeth on each side. Thick, apparently fleshy when fresh, rigid when dry, uniformly gray-green. Heads terminal, short-peduncled, at length 1 cm. or more long and 4 or 5 mm. broad, the scales very densely imbricate. Floral bracts about 3 mm. long and nearly as broad, the broad claw about one-third of the length, the broad rounded summit ciliate and sharply mucronate. Calyx campanulate, strongly compressed so as to have a similar form to that of the bract, but with a deeply notched summit, the lips being transverse to the compression. Corolla 3 mm. long, the tube abruptly much contracted above the base, the throat rather abruptly expanded, the upper lip nearly twice as long as the lower, very broad, with nate margin, the lower 3-lobed, the lobes spreading.

"Growing in dense mats, in sand, at Mollendo, Peru, sea-level, the flowers blue, August 5, 1901." (R. S. Williams, No. cre 2933.)

Salvia tenuistachya.

Inflorescence minutely puberulent. Stems slender, sharply angled above. Upper petioles indistinguishable from the acuminate leaf bases, some of the lower up to 3 or 4 cm. long, slender. Blade 6 to 12 cm. long, 3 to 7 cm. broad, ovate and somewhat rhomboidal with the base abruptly contracted into the petiole and the summit abruptly acuminate and acute; coarsely serrate with acute teeth and sinuses, thin, bright green, the slender venation slightly prominent beneath, the secondaries three on each side, sub-erect, connected by few crooked tertiaries. Racemes simple or branched at the base, much elongated, narrow, the whorls subtended by deciduous lanceolate attenuate bracts, the lower mostly 6-to 8-flowered, the pedicels about as long as the calyx in the fruiting stage, half as long in flower. Flowering calyx 4 or 5 mm. long, sharply five-ribbed, the tube narrowly campanulate, the lips about a third of the total length. Upper lip entire, the lower a little longer, bifid, all acuminate and acute. Corolla 8 mm. long, the lips nearly half of the length, the upper entire, and concave, the lower three-lobed, its middle lobe narrower. Filaments 1.5 mm. long, thick, the connective much thickened, the upper branch about as long as the filament, attenuate toward the summit and attached at about the middle of the slender anther cell. Lower branches of the connectives connate in their lower two-thirds, and a little longer than the upper. Lower style-branch short, broad, obtuse, the upper elongated and filiform.

"Erect, to four or five feet, the flowers deep blue. Local in clearings or open forest, 800 to 2,500 feet. September. Collected at Jiracasaca, 2,500 feet, December 2." (Herbert H. Smith, Colombia, No. 1370.)

Apparently the same as Fendler's No. 876.

Salvia viridifolia.

Leaves sparsely strigose and somewhat harsh, the inflorescence tomentellate and somewhat ferruginous. Branches suberect, very leafy. Petioles 1 cm. long, slender. Blades 7 to 10 cm. long, 2 to 3 cm. broad, regularly lanceolate, with acuminate base and longer acuminate and acute summit, finely serrate with erect teeth, thickish, deep-green, the venation very slightly prominent on both sides, the stoutish secondaries five on a side, erect and more or less falcate near the midrib, connected by numerous fine tertiaries. Spikes elongated and narrow, densely flowered, the verticels many flowered, their bracts nearly 1 cm. long, ovate, with long-attenuate summits, the pedicels very short. Flowering calyx 7 mm. long, sharply ten-ribbed, the tube cylindrical, twice the length of the limb. Upper lip entire, a little longer than the lower, the summit very broad, mucronate, the lower deeply two-lobed, the lobes triangular and acuminate. Corolla 14 mm. long, puberulent below, the upper lip tomentose, erect, strongly concave, minutely two-toothed, the lower three lobed, its middle lobe spatulate and thickened, the lateral obliquely triangular. Stamens inserted in the top of the throat, the filament a little shorter than the branches of the connective. Lower branch much thickened, its anther-cell very small and rudimentary. Upper branch inserted near the top of the anther-cell and twice its length. Lower branch of style very short and thick, sharply recurved, the upper elongated and wholly exserted, finely attenuate.

"A shrub to five feet, with white flowers. In an open place near streams, Las Nubes, 4,500 feet, December 15.") Herbert H. Smith, Colombia, No. 1381).

Salvia libanensis.

Softly tomentose. Stems stoutish, but weak, brown-hairy, the tops of the hairs white and glistening. Petioles (only the upper seen) 2.5 to 7 cm. long. Blades 7 to 15 cm. long, 4 to 8 cm. wide, ovate with rounded, truncate or slightly cordate base and abruptly acuminate and very acute summit, serrate with short teeth and acute sinuses, thin, deep-green, but brownish with the indumentum, the slender venation not prominent, the principal secondaries about 6 on each side, approximate below, distant above, strongly falcate-ascending, connected by numerous obscure crooked tertiaries. Racemes at first dense,

becoming loose and elongated, the whorls about 5-flowered, the pedicels at length nearly as long as the calyx, all densely brown-hairy. Flowering calyx scarlet, or greenish, nearly 2.5 cm. long, and 2 cm. broad, campanulate with broad base, very slightly 2-lipped, with triangular erect teeth, terminating in rigid acute points about 2 mm. long. Corolla 6 to 8 cm. long, very loosely enclosed in the calyx, narrowly infundibular, the lips about a third of the length. Tube somewhat ventricose, straight. Upper lip concave, enclosing the upper anther-cells, which are 4 mm. long, attached slightly above the base. Filaments short and thick. Both branches of the connective dilated and broader than the theca, with a strong brown middle line, the upper 12 mm. long, the lower 8 or 9 mm. long and completely connate except for the notched end. Style-branches exserted, the lower narrowly subulate, the upper long-attenuate and sigmoid curved. Nutlet 4 mm. long, 2.5 mm. broad, ovoid, obtuse, slightly curved, deeply 3-sulcate.

" A shrub 6 or 8 feet high, the flowers varying from vivid scarlet to dull red, the calyx the same or greenish. Common locally in damp mountain forest, usually in boggy ground, Sierra del Libano, about 6000 feet. Collected in March." (Herbert H. Smith, Colombia, No. 1380.)

Salvia multispicata.

Finely and harshly strigose. Stems stoutish but weak, strongly sulcate, much branched above. Petioles 5 to 10 mm. long, slender, the blades 12 to 25 mm. long, 8 to 16 mm. wide, ovate, with the rounded base abruptly produced into the petiole and with acute summit, irregularly and sparsely dentate, the teeth sub-obsolete the sinuses acute; thin, the venation inconspicuous the secondaries, 3 to 5 on a side. Spikes crowded at the summit, branched at the base, slender, the whorls distant, except near the ends, densely many-flowered, subtended by broadly ovate venose bracts, the pedicels extremely short, slender. Flowering calyx 4 mm. long, densely pilose, 10-nerved, campanulate, divided a third of the way, the lips equal, the lower entire, twice as wide as the two lobes of the upper, all acute. Corolla twice the length of the calyx, narrowly infundibular, the upper lip entire, half as long as the lower, which has two obscure lobes at the base. Filament filiform, the lower branch of the connective short, bearing a small empty theca, the upper twice as long, fertile.

"Near Jiracasaca, in a damp clearing in a ravine, 2,500 feet." (Herbert H. Smith, Colombia, No. 1371.)

Salvia secundiflora.

Younger portions and lower leaf-surfaces sparsely and minutely strigose, or the latter glabrous. Stems slender,

ascending, bluntly quadrangular, the internodes 5 to 7 cm. long. Petioles very unequal, to 6 cm. long, very slender, narrowly grooved above. Blades 5 to 12 cm. long, 3 to 8 cm. broad, ovate, some slightly rhomboidal with the base varying from rounded to very broadly cuneate and with short-acuminate summit, very thin, deep-green, the margin serrate with appressed teeth, the slender venation slightly prominent on both surfaces, the secondaries 4 or 5 on a side, strongly ascending, nearly straight, forking at some distance from the margin, connected by crooked tertiaries. Peduncle mostly stout, 5 to 8 cm. long, the rachis mostly much longer, falcately curved, usually secund and densely flowered, the fascicles sessile, about 6-flowered, the pedicels slender, less than half the length of the calyx, which in flower is 8 mm. long, strongly 10-ribbed, lobed a third of the way, the tube 2 mm. broad, oblong, the upper lip entire, the lower two-lobed half its length, the divisions triangular-lanceolate, acuminate and acute. Corolla 15 mm. long, pilose without, glabrous within, the narrowly infundibular tube 6 mm. long, the throat 3 mm., the upper lip erect, concave, entire, the lower 3-lobed, the middle lobe oval with narrow base, about twice as large as the ovate lateral ones. Stamens attached in the throat, the filament 2 mm. long, the lower branch of the connective 5 mm. long, the upper 2 mm. long, dilated, slightly longer than the anther-cell, which is slightly exserted. Style exserted, the summit sharply recurved.

"A shrub 3 to 6 feet high, with scarlet flowers. Local and rather rare in dry forest region below 1000 feet, generally in open ravines. Collected five miles north of Bonda, about 100 feet, October 22. (Herbert H. Smith, Colombia, No. 567.)

No. 379, "a shrub 5 to 8 feet high, with scarlet flowers, occasional in thickets on open hillsides, 1500 to 3000 feet, collected at Onaco, 2500 feet, December 20" is a variety of the same.

Solanum tetrapetalum.

Petioles, midribs, etc., of young leaves minutely puberulent. Herbaceous, unarmed, the stems and branches elongated and very slender, trailing, coarsely angled and sulcate. Leaves 3 to 6 cm. long, 2.5 to 5 cm. broad, sessile, pinnate with 7 to 9 pinnae, the lowest pair of pinnae stipuloid, the lower ones smaller, the terminal much larger, all oblong-ovate and short petiolulate, sub-opposite, rounded at the base, the terminal cuneate, obtuse, thin, obscurely crenulate. Cyme sub-sessile, 2-flowered, the pedicel slender, 1 cm. long, or 1.5 cm. in fruit. Calyx 3 mm. long, lobed two-thirds of the way, the 4 lobes lanceolate, acuminate and acute. Corolla 1 cm. long, lobed to the base, the 4 lobes oblanceolate, obtuse. Stamens four, 6

mm. long, the filaments nearly a third of the total length, the anthers linear-oblong, straight, not acuminate, the pores looking upward and slightly inward. Berry oval, about 1 cm. long.

"Trailing 4 to 5 feet. Local in damp open places, clearings, etc., 4,000 to 6,000 feet. Collected on Sierra del Libano, 6,000 feet. January 23 and March 18. (Herbert H. Smith, Colombia, No. 1175).

Solanum penduliflorum.

Specimen consisting of the end of a branch, in young fruit and bearing a single flower.

Stellate-puberulent throughout, the branch slender, strongly striate, the petioles strongly deflexed at the base. Petioles 6 to 20 mm. long, slender, striate or costate, sometimes twining, the blades 4 to 5 cm. long, 2 to 3 cm. broad, ovate with lightly cordate base and short-acuminate and acute summit, the slender venation scarcely prominent, the secondaries about 10 on each side, strongly falcate-ascending, the venation loosely reticulate, thin, yellowish-green, softly pubescent. Panicle terminal, the rachis flexuous, the slender branches divaricate and at length somewhat recurved, densely flowered, nodose from the fallen pedicels, the fruits pendulous. Pedicels very slender, 5 to 7 mm. long, thickened and costate toward the summit. Calyx cupulate or short-campanulate, about 4 mm. broad and 2 mm. high, lightly 5-ribbed, the lobes very short and broad, mucronulate. Corolla divided nearly to the base, the lobes 7 to 9 mm. long, lanceolate, acuminate. Filaments very short, one longer than the others, the anthers 4 mm. long, narrow, lanceolate, the pores large, looking upward and laterally. Berry globose, 8 or 9 mm. broad.

"A vine, 15 feet long. Second growth. Alluvial soil, ¼ mile from coast, Don Diego, May 5. Only one plant seen, mostly in fruit, the corolla white, the berry purplish." Herbert H. Smith, No. 2661.)

Solanum scorpioideum.

Shortly, densely and harshly stellate-hairy and somewhat ferruginous. Branches woody, deep-purple, coarsely angled, sparsely hairy, sparsely armed with short, stout, straight, laterally compressed, slightly hairy or smooth yellow prickles, the branchlets short and stout. Petioles (only the upper leaves seen), up to 4 cm. long, stout, sub-terete, sparsely armed like the branchlets. Blades up to 2 dm. long and 17 cm. broad, ovate or obovate, with inaequilateral rounded sub-cordate base and abruptly rather long-acuminate and acutish summit, thick, coarsely toothed, the teeth 3 or 4 on each side, triangular-ovate

and acute, the sinuses similar and extending about half way to the midrib, a strong secondary extending into the tip of each. Venation coarse, strong and prominent underneath, coarsely anastomosing. Cyme very shortly and stoutly peduncled, scorpioid, densely many-flowered, bifurcating, the branches mostly more or less compound, the pedicels stout, about 8 mm. long, sub-erect. Calyx-tube hemispherical or broadly campanulate, about 3 or 4 mm. long, the lobes about half as long, narrowly triangular, attentuate and acute, the sinuses broad and rounded. Corolla 1.5 cm. long, campanulate, puberulent, lobed two-thirds of the way, the lobes ovate with a strong mid-vein. Stamens about 1 cm. long, the filaments very short, the anthers narrowly lanceolate, acuminate, the upper portions light-colored, lightly incurved, the small pores directed upward and slightly inward. Ovary small, ovoid with rounded summit, glabrous, the style stout, slightly exceeding the stamens.

"A small tree, 8 to 12 feet. Common in clearings near stream at Las Nubes, 4,500 feet. December 8. Petals white. Stem pretty thickly covered with thick thorns, sometimes nearly an inch long. Also common in clearing at 6,000 feet, Sierra del Libano." (Herbert H. Smith, Colombia, No. 1144.)

Solanum auctosepalum.

Harshly, shortly and densely yellowish stellate-hairy throughout. Branches woody, very flexuous, terete, sparsely armed with short, stout, yellow prickles. Petioles up to 5 cm. long, stout, sub-terete, grooved above, widely spreading or recurved. Blades 10 to 15 cm. long and nearly or quite as wide, ovate with cordate and mostly unequal base, with rounded lobes, and acute acumination at the summit. Margin coarsely dentate or sinuate-dentate, the teeth 4 to 6 on a side, short, broad and mostly obtuse, the sinuses blunt or rounded, a secondary running into each tooth. Leaf thin, the lower side of petiole and principal veins of the larger ones sparsely armed with short, straight, laterally compressed, yellow prickles. Cymes racemiform, small, subsessile, the few flowers densely placed, the pedicels 1 to 1.5 cm. long, stout. Calyx 6 mm. long, lobed nearly to the base, the lobes lanceolate and mucronate. Corolla rotate, 3 cm. broad, lobed two-thirds of the way, the lobes with a broad, dark mid-vein. Stamens 8 mm. long, the filaments very short, the anthers narrowly lanceolate, acuminate, slightly incurved above, the small pores directed nearly upward.

"Occasional on open swampy land near mouth of Rio Buritaca, 50 miles east of Santa, September 25." (Herbert H. Smith, Colombia, No. 1154).

No. 1854. "A shrub 4 feet high, the only one observed, in an open dry watercourse near the seashore at Playa Brava,

February 10. Corolla white," may be the same, though the flowers are smaller, and the corolla is less deeply lobed.

Solanum sacupanense.

Armed with few small, short, recurved laterally compressed yellow prickles. Finely and closely grayish stellate-hairy and roughish throughout except the shining fruit. Branchlets elongated, sub-erect. Longer petioles 2 cm. long, broad, channelled above, the blades 5 to 10 cm. long, 2.5 to 5 cm. broad, varying from oblong or oval to ovate with acute base and obtuse summit, entire, the slender venation sharply prominent underneath, the principal secondaries 8 or 9 on each side, somewhat falcate, rather crooked, connected by the few tertiaries. Racemes sub-sessile, simple, few-flowered, spreading or recurved. Pedicels slender, thickened upward, in flower 5 or 6 mm. long, in fruit 10 to 12 mm. Calyx crateriform, lobed about half way, the tube 3 mm. broad, the lobes ovate, acute, appressed. Corolla white, lobed nearly to the base, the lobes widely spreading, 1 cm. long, lanceolate, acuminate, Stamens nearly 1 cm. long, the white filaments nearly a third of the total length, the anthers acuminate, nearly straight, the small pores directed upward. Fruiting calyx slightly enlarged, the berry yellow (or red?) shining, globose, 1 cm. broad.

Sacupana, lower Orinoco, April (Rusby and Squires, No. 22.)

Very near to Fendlers 983 from Tovar. Species near *S. heterophylla.*

Solanum deltoideum.

Unarmed and gray-tomentellate throughout or the younger portions tomentose. Apparently herbaceous, the branchlets widely spreading, coarse but weak, sub-terete. Petioles 2 cm. or less long, stout, the blades 4 to 10 cm. long, 3 to 5 cm. broad, deltoid-ovate with sub-truncate base slightly produced into the petiole, and short-acuminate and acute summit, coarsely and unequally dentate with short, more or less triangular teeth and similar sinuses, thin, gray beneath, green above, the slender venation lightly prominent, especially underneath, where it is white and coarsely anastomosing. Racemes umbelliform, few-flowered, the spreading, stout peduncles longer than the pedicels, which are 1.5 cm. long in fruit and reflexed. Flowers not seen. Fruiting calyx 8 mm. broad, lobed more than half way, the lobes narrow, acuminate, the sinuses very broad and rounded. Berry globose, more than 1 cm. broad, apparently red, glabrous.

Yungas, Bolivia, 1890 (M. Bang, No. 740.)

This was published as *S. montanum* R. & P., but a better acquaintance with that species proves it distinct.

Cyphomandra chlorantha.

Younger portions of stems, lower leaf-surfaces, inflorescence and flowers very finely puberulent. Branches slender, terete, pale-green. Leaves on the basal shoots pinnate, 2.5 dm. long, the pinnae short and slenderly petiolulate, 5 to 10 cm. long, lanceolate, acuminate and acute. Petioles of the regular stem-leaves about 1 cm. long, slender, channelled above, the blades 6 to 12 cm. long, 2.5 to 5 cm. broad, mostly somewhat inequilateral, lance-ovate with rounded base and acuminate and acute summit, entire, very thin, the very slender venation prominent on both sides, the principal secondaries about 6 on each side, strongly falcate-ascending, the venation coarsely anastomosing. Cymes long and slenderly peduncled, loosely several-flowered, the pedicels 1.5 to 2 cm. long, striate. Calyx 5 mm. broad, rotate, lobed about half way, the lobes broadly ovate, abruptly acuminate and acute, sharply ribbed. Corolla puberulent on both surfaces, campanulate, about 12 mm. long, lobed a little more than half way, the lobes ovate, obtuse. Stamens 5 mm. long, the anthers sessile, incurved, the connective very broad and thick, the thecae not reaching its base and inflexed at the summit, the small pores looking inward. Ovary oval. Style stout and stigma large. Fruit (mature?) 2 cm. long, 1 cm. broad, oval, obtuse.

"Erect, branching only above, but the lower part of the stem with divided leaves. Rare in damp clearings, 4,000 to 6,000 feet. January to April. Flowers pale greenish. Collected at Valparaiso, 4,500 feet, January 26."

(Herbert H. Smith, Colombia, No. 1180.)

Cyphomandra bassovioides.

Unarmed and glabrous, the branchlets stout, obscurely angled and sulcate. Petioles reaching nearly 2 cm. long, the blades 7 to 15 cm. long, 3 to 5 cm. broad, oblong-oblanceolate, with inequilateral acute base and acuminate and acute summit, entire, thickish, the venation sharply prominent beneath, slightly so above, slender, the principal secondaries about 12 on each side, widely spreading, falcate, interarching at the ends, the veins coarsely anastomosing. Racemes umbelliform, sessile, several-flowered, the pedicels slender, regularly enlarging to the summit, 1.5 cm. long in flower, 2.5 cm. in fruit, fleshy and wrinkled in drying. Calyx broadly campanulate, 6 or 7 mm. broad in flower, twice as broad in fruit, slightly lobed, the sinuses acute, the lobes very broad with rounded summit. Corolla campanulate, divided nearly to the base, the lobes 8 mm. long, ovate. Stamens 7 mm. long, the stout filaments about one fourth the total length, the anthers oblong, stout, slightly incurved, the connective moderately thickened, the

pores looking inward and laterally and continued downward into sutures. Ovary small, broadly ovoid, obtuse, the style exceeding the stamens. Fruit (matuie?) 2 cm. long and nearly as broad, obovoid, with rounded summit, apparently red.

"A shrub to 6 feet in damp clearings, 6,000 feet, Sierra del Libano, January 20. Moderately common here but not observed elsewhere. Corolla white." (Herbert H. Smith, Colombia, No. 1181.)

Bassovia calceolarioides.

Glabrous, the stems flexuous, coarsely sulcate, the internodes in my specimen 2 to 3 cm. long. Petioles 4 to 6 mm. long, stout. Blades 7 to 10 cm. long, 2 to 3.5 cm. broad, inequilateral, lanceolate to oblanceolate, the oblique base obtuse to sub-rotund, the summit abruptly acuminate and acute. Thickish, dark green, the slender venation lightly prominent underneath, the secondaries 8 or 10 on each side, some of them indistinct, strongly falcate and connecting near the margin. Small basal leaflets reflexed, mostly 2 or 3 together, to 10 mm. long, ovate to rotund. Fascicles mostly 3-flowered, the pedicels very short and stout. Calyx 6 to 9 mm. broad, broadly campanulate, divided half way or more, the lobes ovate, short-acuminate. Corolla 1 cm. long, broadly campanulate, lobed two-thirds of the way, the lobes broadly ovate, acuminate.

"Suffruticose, 2 to 4 feet high. Moderately common in an abandoned clearing, Sierra del Libano, 6,000 feet, March 8. Flowers creamy-white." (Herbert H. Smith, Colombia, No. 1184.)

Bassovia ferruginea.

Young portions coarsely pilose with yellowish hairs. Stems thick but weak, flexuous, irregularly angled, mostly with a small sessile leaf at the base of the principal one, of the same form. Petioles about 6 mm. long, stout, the blades of the principal leaves 4 to 10 cm. long, 1.5 to 3 cm. broad, the small sessile ones 3 to 5 cm. long, and half as broad, all lanceolate with acute base and long acuminate and acute summit; entire, thin, dark-green, the stout venation conspicuous on both surfaces, especially beneath, the secondaries 5 or 6 on each side, strongly ascending. Flowers subsolitary, the pedicels about 2 cm. long. Calyx-tube campanulate, about 3 mm. long and 4 or 5 mm. broad, with 10 strong green nerves, the margin truncate, bearing 10 linear teeth, shorter than the tube. Corolla divided nearly to the base, the lobes 1 cm. long, lanceolate. Stamens half the length of the corolla, the filaments very short, the anther oblanceolate, with broad truncate summit. Style a little exceeding the stamens.

"Suffructicose, erect, 3 to 4 feet high, in damp clearings, Sierra del Libano, 6,000 feet, January 23, flowering until May or later. Corolla white, sometimes tinged with purple." (Herbert H. Smith, Colombia, No. 1182.)

Burchell's No. 3705 is similar, but the flowers are not more than half as long.

Physalis petiolaris.

Villous with spreading hairs. Branches elongated, very flexuous, sparsely leafy, slender, sharply angled above, many-striate below, the internodes about 5 cm. long, the short branchlets divergent. Petioles filiform, striate, some nearly 7 cm. long, the blades 4 to 7 cm. long, 2.5 to 4 cm. broad, inequilaterally ovate with a short abruptly acuminate and acute summit and shallowly cordate base, the margins obscurely sinuate, occasionally toothed, very thin, the slender venation inconspicuous, the 5 to 7 secondaries strongly ascending, nearly straight or lightly falcate above. Peduncles solitary, in flower about 6 mm. long, moderately elongating in fruit, slender, densely villous like the calyx, which is narrowly campanulate, 5 mm. long, lobed more than half way, the tube 3 mm. broad, the base truncate and umbilicate, the lobes triangular-lanceolate, regularly acuminate and acute, appressed, the sinuses acute. Corolla 7 mm. long, campanulate, villous, sulphur-yellow, shallowly lobed. Stamens nearly equalling the corolla, the filaments twice the length of the anthers. Fruiting calyx, as pressed, 2 cm. long and somewhat broader, the short point extremely abrupt, 5-ribbed, the base umbilicate and shortly 5-lobed, the berry about 1 cm. broad.

"Herbaceous, erect or ascending, 1 to 2 feet. Local and rather rare in damp clearings and waste places below 2000 feet. Flowers pale yellow, the throat spotted with dark purple. Collected near Bonda, 150 feet, November 9." (Herbert H. Smith, Colombia, No. 1171.)

Physalis cuneata.

Calyx, pedicels and young petioles minutely and sparsely puberulent. Branchlets slender, flexuous, terete, the younger portions irregularly angled. Leaves, including petioles, 7 to 15 cm. long, 3 to 5 cm. broad, the blades ovate, acuminate and acute, abruptly contracted into a basal portion which is gradually narrowed into a very slender narrowly margined petiole, the whole being about one-third the total length of the leaf. Margin varying from entire to irregularly sinuate or occasionally with one or more short, broad teeth. Blade very thin, deep-green, the slender venation inconspicuous, the second-

aries 5 to 8 on each side, ascending and lightly falcate. Peduncles mostly solitary, occasionally 2 or 3 together, 5 mm. long in flower, 2 cm. in fruit, very slender, terete, dilated at the base. Calyx in flower broadly campanulate, 4 mm. long, lobed more than two-thirds of the way, the tube nearly 3 mm. broad, the lobes ovate, obtuse or acutish, lightly spreading. Corolla campanulate, twice the length of the calyx, 5-lobed, apparently wholly yellow. Stamens 5 mm. long, the filaments stout, nearly as long as the lance-oblong obtuse anthers. Style slightly exceeding the stamens. Fruiting calyx, as pressed, sub-rotund, 3 cm. long, very abruptly and very shortly pointed, strongly umbilicate and obscurely lobed at the base, thin, slenderly and lightly costate and reticulate, the berry about in the center, a little more than 1 cm. broad.

"A shrub, 4–6 feet, occasional in region east of Santa Marta. Collected near Playa Brava, November 17" (Herbert H. Smith, Colombia, No. 1482.)

Physalis margaranthoides.

Younger portions scurfy with very short hairs. Branchlets very slender and weak, angled or striate. Petioles very unequal, very slender. Blades very unequal, the larger 6 cm. long and 3 cm. broad, ovate, inequilateral, with sub-cuneate base and acuminate and acute summit, sparsely, coarsely and unequally dentate, the teeth mostly obtuse; thin, the venation prominent beneath, the secondaries 2 or 3 on each side, coarsely looped together. Pedicels very slender. Calyx 3 mm. long and broad, campanulate, 5-ribbed, lobed about half way, the lobes triangular, acuminate and acute. Corolla seen only in the bud, when it is twice the length of the calyx, obovoid and obtuse. Mature fruit on a recurved pedicel 1 cm. long, the mature calyx 2 cm. long and broad, abruptly short-acuminate and acute, strongly reticulate-veined, the berry globose, about 1 cm. broad.

"Puerto Peano, Rio Magdalena, Colombia, September 6, 1852." Collected by I. F. Holton, without number.

Cestrum imbricatum.

Glabrous with the exception of the inflorescence, the pedicels, etc., bearing a few very small hairs. Branches elongated, stout, terete, densely leafy, the leaves imbricated, 5 to 10 cm. long, 2 to 3 cm. broad, oblong, tapering into a short petiole-like base, acute, thickish, with revolute margin, the venation very strong and prominent underneath, slightly so above, the principal secondaries 8 to 10 on each side, strongly falcate, anastomosing close to the margin, the venation strongly reticulate. Racemes or panicles sub-sessile, about half as long as

their leaves, rather densely flowered, the bracts very short and broad, the flowers very shortly and stoutly pedicelled. Calyx 3 or 4 mm. long, urceolate-campanulate, the teeth very short and broad, mostly acutish. Corolla 15 mm. long, lobed about a fifth of the way, the tube regularly infundibular, sharply nerved, the lobes ovate and obtuse. Filaments attached below the middle of the tube, the anthers and stigma reaching the base of the lobes. Anthers broader than long. Style stout, stigma large, slightly lobed. Ovary 2 mm. long and nearly as broad, obovoid.

"A shrub 3 or 4 feet high; extremely rare on the extreme summit of San Lorenzo Ridge, about 7000 feet. January 25. Flowers purplish." (Herbert H. Smith, Colombia, 1896.)

Cestrum papyraceum.

Glabrous, the branchlets elongated and very slender, sulcate. Stipule-like appendages at the base of the petioles strongly falcate, obtuse, about 6 mm. long and 3 mm. wide. Petioles 5 or 6 mm. long, margined. Blades 8 to 12 cm. long, 3 to 4 cm. broad, lanceolate with acute base and acuminate and acute summit, very thin, bright-green, the midrib impressed and 2-nerved above, broad, flat and nerved underneath. Raceme terminal, few-flowered, the bracts elongated, linear, the flowers sessile. Calyx 3 mm. long, campanulate, the teeth ovate, very short, as broad as long or broader. Corolla-tube 2 cm. long, 1 mm. wide, cylindrical, slightly broadened at the summit, the lobes 5 to 6 mm. long, ovate, obtuse. Filaments attached near the base of the lobes, short, the anthers large. Style filiform, the stigma peltate, bi-penicillate.

A single specimen collected in Bolivia, by Mr. M. Bang, without data as to locality.

Cuspidaria ovalis

Specimens in fruit. Glabrous throughout. Petioles (only the upper seen) 3 to 5 cm. long, slender, terete, the leaves trifoliolate, the lateral petiolules 1.5-2.5 cm. long, the terminal a half longer; lateral and terminal blades subequal and subsimilar, 8 to 16 cm. long by 4 to 8 cm. broad, oblong or oval, sub-rotund at base, shortly and bluntly pointed at the summit, thickish. Principal veins about 6–8 pairs, lightly upcurved, connected by secondaries, all the venation very slender, finely reticulate and lightly prominent on both sides. Pods about 20 cm. long and 1.5 to 2 cm. broad, straight, light-brown, traversed in the center of each side by a faint ridge and winged on each side by a thin coriaceous margin about as wide as the middle portion. Body of seed brown, nearly semicircular, 12 mm. in greatest breadth, the white hyaline wing about as wide on each side, wanting at top and bottom.

Collected by M. Bang at Mapiri, Bolivia, July to August, 1892 (No. 1485).

Adenocalymna purpurascens.

Glabrous, the branchlets stout, terete, leafy. Petioles 3 cm. or more long, very stout, sub-terete. Leaves 3-foliolate, one of the lower leaflets a large, strong, simple tendril. Petioles about 2 cm. long, stout, channelled on the upper side, finely transversely wrinkled, the blades 7 to 12 cm. long, 6 to 8 cm. broad, ovate with rounded or slightly unequal base and rounded or slightly produced summit, entire, very thick, drying a deep purple-brown, slightly shining above, the venation sharply prominent beneath. partially impressed above, the principal secondaries about 6 on each side, strongly falcate and connecting at some distance from the margin, connected by the tertiaries, the remaining venation very finely reticulate and prominent on the upper surface. Raceme simple or branching, stoutly peduncled, slender, loosely flowered, the flowers opposite, shortly pedicelled in the young budding state. Bracts a third as long as the buds, sessile, broadly ovate, mucronate, thick. Flowers and fruit not seen.

Lower Orinoco, Venezuela. Rusby and Squires, the specimen unique, without number or locality.

Adenocalymna latifolia.

Scurfy-puberulent throughout, on the upper leaf-surfaces only along the principal veins. Petioles 5 to 7 cm. long, terete, striate or lightly flattened on the upper side. Leaflets 3, the petiolules articulated into sockets of the petiole, the lateral 2.5 cm., the terminal about 5 cm. long, terete and striate. Lateral leaflets about 10 to 12 cm. long, 7 to 10 cm. broad, ovate with subcordate base, the terminal somewhat larger, especially longer, and with truncate or rounded base; thin, pale-green, all the venation prominent on both sides, especially beneath, the secondaries 7 to 10 on each side, the lowest pair rising from the summit of the petiole, all slightly ascending and little curved, the venation finely reticulate. Peduncle about 2 cm. long, very stout, the panicle at first dense, later elongating more or less, the pedicels very short and stout, elongating somewhat in fruit, the bracts conspicuous, at length 1.5 cm. long and 6 mm. broad, ovate, obtuse or acute, thick, yellowish, scurfy. Calyx 12 mm. long, 6 or 7 mm. broad, cylindraceous-campanulate, the lobes 3 mm. long, broadly ovate, acute. Corolla yellow, scurfy, less so within, the tube proper little exceeding the calyx, the broadly campanulate throat nearly 2 cm. long, the limb nearly 4 cm. wide when fully expanded. Anthers included or slightly exserted, the cells 4 mm. long, lanceolate, obtuse. Very young pod yellowish-scurfy, slender, lightly curved.

Miguel Bang, Bolivia (No. 2535).

Distributed as "*A bracteata* (Cham.) DC." and very near that species.

Adenocalymna symmetrica.

Glabrous, with the possible exception of the inflorescence, which is not present in the specimen. Branchlets slender, sulcate, multi-foveolate at the base of the nodes, bearing two approximate pairs of leaves near the summit, the lower pair much smaller, and having one of the lateral leaflets of each leaf converted into a short, slender tendril, the petioles 1.5 or 3 cm. long, terete, foveolate at the summit, the lateral petiolules 4 to 9 mm., the terminal 5 to 25 mm. long. Leaflets 7 to 12 cm. long, 2 to 5 cm. broad, lanceolate, acute, thickish, the lateral smaller than the terminal in the lower pair, larger in the upper and with oblique subcordate base, that of the terminal equal and slightly cordate. All the venation prominent on both surfaces, 5 to 7 small nerves radiating from the summit of the petiolule, the remaining secondaries about 10 on each side, very slender, little curved but crooked, bifurcating and connecting at some distance from the margin, the venation finely and strongly reticulate. Calyx not seen. Single corolla present minutely puberulent, the tube proper 2 cm. long, slightly contracted above, the throat 2.5 cm. long, infundibular, the two upper lobes 2 cm. long, the lower three shorter and relatively broader. Stamens included, not seen.

Rusby and Squires, lower Orinoco, Venezuela, 1896; without number or locality, and not duplicated.

Besleria debilis.

Younger portions, inflorescence and lower leaf-surfaces puberulent. Stems slender, ascending, weak, sulcate. Petioles to 3 cm. or more long, slender. Blades 8 to 15 cm. long, 3 to 6 cm. wide, inequilaterally ovate, acuminate and acute at both ends, obsoletely serrate, very thin, the slender venation slightly prominent beneath, the secondaries about 7 on each side, strongly falcate-ascending and faintly connecting to form the margin of the leaf. Peduncles axillary, shorter than the petioles, filiform, the pedicels similar and about equal, 2 to 5 in number, arising together from the summit of the peduncle. Calyx parted almost to the base, the lobes ovate, abruptly contracted into narrow green appendages, thin, colored, the longest 7 mm., the shortest nearly as long, loosely enveloping the base of the corolla, which is nearly 2 cm. long, narrowly campanulate, gibbous at the base and ventricose near the mouth, which is shortly 5-toothed, the teeth ovate, acute. Filaments attached 5 mm. above the base of the corolla, the bases dilated and coher-

ent in pairs, pilose, tapering to the summit, nearly as long as the corolla-tube, the anthers very broad and flat, not coherent. Disk of two opposite broad truncate or sub-rounded scales a third of the length of the ovary, which is half as long as the calyx, obliquely ovoid, glabrous. Style nearly 1 cm. long, filiform, the stigma oblique, obscurely 2-lobed.

"A shrub 3 to 4 feet high, with orange-red flowers, in damp and shady ground to 5,000 feet. Collected near Valparaiso, 4,000 feet, March 21." (Herbert H. Smith, Colombia, No. 1399.)

Besleria tenuifolia.

Younger portions and lower leaf-surfaces when young, puberulent. Stems weak and slender, leafy to the summit. Petioles and leaves very unequal, the former up to 6 cm. long, very slender. Blades 6 to 18 cm. long, 2.5 to 8 cm. wide, inequilaterally ovate and abruptly short-acuminate at both ends, obsoletely serrate, very thin, the venation slender, lightly prominent above, the midrib narrowly 3-sulcate on both surfaces, the secondaries about 7 on each side, more or less decurrent on the midrib. Peduncles axillary, short, unequal, 2 or 3-flowered, the pedicels very slender, unequal.

Calyx-tube crateriform, very short, the lobes 5 to 7 mm. long, broadly and inequilaterally ovate, acute or short-acuminate, thin. Corolla 2 cm. long, slightly gibbous at the base, strongly ventricose at the summit, 5-lobed, the lobes 3 mm. long, semi-circular. Disk of 2 very oblique scales, very short at one side and gradually increasing in length toward the other, then abruptly elongated into narrow obtuse appendages. Ovary conical, longer than the calyx. Filaments attached 6 mm. above the base of the corolla, dilated at the base and connate in pairs, all the anthers coherent. Summit of ovary continuous with the style, which nearly equals the corolla and is abruptly flexed near the summit. Fruit spheroidal, 12 mm. broad.

"A shrub to 4 feet, with orange-red flowers and red fruit, in low damp forest near the coast at San Diego, May 12." (Herbert H. Smith, Colombia, No. 2672.)

Gesneria onacaensis.

Leaves, etc., shortly and minutely strigose. Leaves irregularly crowded at the ends of the branchlets, 15 to 30 cm. long and 5 to 7 cm. wide, inequilaterally lance-oblong with the base gradually narrowed into a pseudo-petiole, and with acute summit and finely and unequally dentate margin, very thin, deep-green, the slender venation inconspicuous, the secondaries very slender, 16 to 20 on a side, strongly ascending, falcate,

the remaining venation loosely branched. Panicles axillary, the slender peduncles 6 or 7 cm. long, terete, loosely branched and many-flowered. Pedicels at length 3 or 4 cm. long, filiform. Calyx-tube turbinate and sharply angled, in flower 3 or 4 mm. long, the lobes longer, attenuate from a triangular base, carinate, reflexed in fruit. Corolla more than 2 cm. long, infundibular, slightly curved, strongly ventricose above the middle, the mouth oblique, 7 mm. broad, as pressed, the teeth short, obtuse, erect, or the lower slightly recurved. Exserted portion of the equal stamens at length 6 mm. long, the anthers small, linear. Style very slightly exceeding the stamens. Calyx-tube considerably elongated in fruit.

"A shrub or tree to 15 or 20 feet, in a damp ravine above Onaco, 3,500 feet, August 18." (Herbert H. Smith, Colombia, No. 1386.)

Diastema Williamsii.

Sparsely pilose with short, thick, weak, white hairs. Stems a few inches high, leafy, thin and weak, purple, sulcate, the leaves opposite, very unequal. Petioles 8 to 10 mm. long, purple with narrow green margin, the blades 2 to 8 cm. long, 1 to 3 cm. wide, lance-ovate, equilateral or otherwise, with obtuse or acute base and obtusish summit, irregularly serrate-dentate with obtusish teeth and acute sinuses, very thin, bright-green, the venation weak and inconspicuous. Peduncles axillary and pseudo-terminal, solitary, 1-flowered, shorter than their leaves, thick but weak, purplish, costate or sulcate. Tube of calyx from which the corolla has recently fallen 1 cm. long, the base abruptly and slightly flexed upon the pedicel, slenderly obconical, slightly gibbous at the base, 5-sulcate, fissured on one side from top to bottom, continued a little beyond the ovary, membranaceous, pilose, the lobes unequal, the longest nearly half the length of the tube, oblanceolate, 3 narrow and 2 broad, thin, foliaceous, pilose and ciliate. Disk of 5 linear, short, distant, nearly equal purple glands, occupying only two-thirds of the circle.

"Rio Pelichuco, Bolivia, 4000 feet, August 27, 1902." (R. S. Williams, No. 2475.)

This plant has the foliaceous calyx-lobes of *Gloxinia*, and the disk of *Diastema*. Its fruit is not ripe, but the fissured calyx-tube indicates the dehiscence of *Monopyle*. The corolla is wanting, but I have little hesitation in referring it to *Diastema*.

Phinaea albiflora.

More or less pubescent throughout. Stems a few inches high, weak, purple, puberulent below, pilose above, leafy, the

leaves extremely unequal. Petioles 2 to 10 mm. long, purple, pilose, the blades 2 to 10 cm. long, 1 to 3 cm. broad, lance-ovate and more or less inequilateral, with obliquely rounded base and obtuse summit, coarsely dentate-serrate with obtusish teeth and sinuses, very thin, bright-green above, purplish beneath, especially the coarse veins, the secondaries about 8 on each side, strongly ascending or sub-erect on the narrow side, little curved, connected by few tertiaries. Pedicels axillary, solitary, very slender, more than half as long as their leaves, purple, pilose. Calyx 1 cm. broad, the tube short, crateriform, the lobes ovate-acuminate but obtusish, the midrib and a pair of faint nerves purple. Corolla rotate, nearly 2 cm. broad, the lobes oval, nearly elliptical, the margins incurved so as to make the lobe concave. Stamens shorter than the corolla-lobes, the filaments slender, the anthers at first coherent, later apparently separating. Style a little longer than the stamens, purple, the stigma small, concave.

"Petals white. Rare on damp rocks, in glens and on ridges on the Sierra Onaca, 4,000 to 5,000 feet; August 22." (Herbert H. Smith, No. 2506.)

Columnea stricta.

Upper leaf-surface sparsely short-strigose, otherwise densely strigose-tomentose. Stems stout, strict, terete. Leaves sessile, 10 to 20 cm. long, 3 to 4.5 cm. broad, oblanceolate, nearly equilateral, abruptly short-pointed and acute, minutely denticulate, thin, deep green above, gray-tomentose beneath. Bracts 2 cm. long, inequilaterally lanceolate, long-acuminate. Flowers short-pedicelled. Calyx 1.5 cm. long, 6 mm. broad, infundibular, lobed nearly to the base, the lobes slightly unequal, lanceolate, attenuate, sharply serrate. Corolla 3 cm. long, 7 mm. wide, infundibular, straight, slightly gibbous at the base, not or slightly ventricose, the mouth equal. Disk small, 2-lobed. Ovary long, tufted at the summit. Anthers and stigma slightly exserted, the anthers very slightly or not at all coherent, small.

"Espirito Santa, near Cochabamba, Bolivia, 750 meters altitude, June 1909." (Otto Buchtien, No. 2209.)

Columnea pallida.

Densely long-strigose throughout, the stems stout, densely flowered and leafy toward the summit. Leaves sessile, 15 to 20 cm. long, 4 to 6 cm. broad, lanceolate or oblanceolate, somewhat inequilaterally acuminate at the base, short-acuminate and acute at the summit, denticulate with salient teeth, thin, yellowish-gray green, the venation inconspicuous. Bracts lance-ovate with attenuate summits, mostly about as long as the

flowers. Calyx campanulate, 1.5 cm. long, divided nearly to the base, the lobes broadly ovate, acuminate. Corolla scarlet, densely strigose, 1.5 cm. long, 6 mm. broad, infundibular, straight, not gibbous, slightly ventricose, the mouth slightly contracted, sub-equal, the lobes ovate, acute, about 3 mm. long. Disk on one side, thin, about 2 mm. long, 3-toothed. Stamens about as long as the corolla, but the filaments strongly curved and the anthers included, the filaments all connate at the base on one side, and adherent to the base of the corolla, one pair of anthers coherent. Ovary pilose, ovoid, 3 mm. long, the style 12 mm. long, the stigma lightly 2-lobed.

Miguel Bang, Bolivia, No. 853, distributed as "*C. adscendens.*"

Columnea grandifolia.

Upper leaf-surfaces rather sparsely, the remainder densely long-strigose. Leaves sessile, 2 to 3 dm. long, 6 to 8 cm. broad, oblanceolate, with slightly inequilateral basal portion and abruptly short-pointed acute summit, the margin minutely and sparsely denticulate and ciliate; thin, above deep-green, beneath gray-tomentose, the venation obscure. Bracts longer than the calyx, ovate, attenuate, sparsely pinnatifid with filiform lobes. Calyx 1.5 cm. long, 1 cm. broad, campanulate, parted nearly to the base, the lobes sub-equal, lanceolate, long attenuate, pinnatifid with long, filiform, hirsute lobes, green-nerved on the back. Corolla nearly 3 cm. long, 6 or 7 mm. wide, cylindrical, straight, contracted and slightly gibbous at the base, slightly ventricose, slightly contracted toward the summit, the mouth sub-equal. Disk half the length of the stoutly conical pilose ovary, 2-lobed, the lobes short, with rounded summit. Bases of filaments dilated, connate, adherent to the base of the corolla, the anthers coherent. Style very slender.

"A shrub a meter high, at San Carlos, Mapiri, Bolivia, 700 meters altitude, August 3, 1907." (Otto Buchtien, No. 1972.)

Buchtien's 2245, from near Cochabamba, 750 M. alt., January, 1909, is probably the same, but corollas are not present.

Columnea (Systelostoma) latifolia.

Stems and lower leaf-surfaces pubescent, the upper leaf-surfaces densely strigose. Petioles 1.5 to 2.5 cm. long, broad, channelled above, lightly carinate beneath. Blades 7 to 12 cm. long, 4 to 8 cm. broad, ovate with obliquely rounded base and abruptly very short-pointed acute summit, obsoletely sinuate-dentate, very thin, deep-green above, but somewhat grayish from the indumentum, deep-purple underneath, the venation broad, impressed above, prominent beneath, the secondaries about

10 on each side, widely spreading and strongly falcate beyond the middle, connecting at some distance from the margin, the remaining venation coarsely reticulate, all brown-hairy on the lower surface. Flowers in one or more whorls at the summit, the pedicels to 4 cm. long, very slender, sharply angled. Calyx bright-purple without, brown on the margins, campanulate, 12 or 14 mm. long, parted nearly to the base, the lobes ovate, acute, two much broader than the others. Disk of 5 oblong, obtuse, erect scales half as long as the ovary, 2 of them united, the others separate and distant. Ovary ovoid, 3 mm. long, 4 mm. broad. Style nearly 2 cm. long, thick, slightly dilated toward the base, the stigmas thin, crenate. Corolla 2.5 cm. long, strongly ventricose or saccate at the summit, where it is 15 mm. long as pressed, gradually contracted to the oblique base, where it is 8 mm. broad, the mouth 5-toothed, the teeth ovate, acute, the two upper larger, the lower narrow, recurved, bifid, the branches acute. Corolla pubescent within, the filaments pubescent, dilated, hyaline and connate at the base, tapering upward, one pair of anthers connate, the other separate, the thecae parallel but separate at the base. Stamens as long as the corolla.

"In a forest at Sierra del Libano, 6,000 feet, May." (Herbert H. Smith, Colombia, No. 1403.)

No duplicate.

Columnea Sanmartensis.

Densely long-strigose with shining hairs, those of the lower leaf-surfaces bright-purple. Stems ascending, single, stout, terete. Leaves sessile, opposite, one of each pair rudimentary, 1.5 or 2 cm. long, the other normal, 4 to 8 cm. long, 1.5 to 2.5 cm. broad, somewhat inequilateral, lanceolate with rounded base and abruptly acuminate and acute summit, thin, the venation concealed by the indumentum. Flowers (but one seen) solitary in the axil, the peduncle 3 cm. long, stoutish, the calyx 2 cm. long, more than 1 cm. broad, campanulate, lobed three-fourths of the way or more, the lobes slightly unequal, ovate, acuminate, the margin bearing several linear, dark-colored teeth or lobes. Corolla deep rose-color, 6 cm. long, the tube proper half as long as the calyx, the remaining portion campanulate-infundibular, and ventricose, nearly 2 cm. broad as pressed, the mouth 2 cm. broad, 5-lobed, 2 of the lobes erect, 6 mm. long, 9 mm. broad, rounded, the adjoining two erect, half as long and broad, triangulate, acute, the fifth spreading or slightly recurved, broadly triangular-ovate, large. Dissection material wanting.

"Rare on trees in damp forests, 5,500 to 6,500 feet, Sierra del Libano, growing to 2 feet. Collected March 7. Corolla scarlet." (Herbert H. Smith, Colombia, No. 1394.)

Beloperone Sanmartensis

Inflorescence brown-tomentose, the branchlets, petioles and venation very finely and closely tomentellate. Stems stout, obtusely quadrangular and broadly sulcate. Petioles (upper only seen) 2 to 7 cm. long, stout, channeled above, the blades 15 to 30 cm. long, 7 to 14 cm. broad, ovate to slightly obovate, rounded or subcordate at the base, shortly acuminate and acute, entire, very thin, paler underneath, the venation slender, sharply prominent underneath, slightly so, with the midrib lightly channeled, on the upper surface, the principal veins about 13 to 15 on each side, lightly falcate and anastomosing close to the margin. Panicle terminal, stoutly peduncled, sometimes with a pair of small ones at its base, bracteate and bracteolate with ovate, acute, sessile bracts, the branches ascending, densely flowered, the flowers sessile, 4 cm. long. Calyx 2-bracted, the bracts broadly ovate, nearly as long as the calyx, which is 12 mm. long, and strongly 10-nerved, divided nearly to the base, the larger lobes ovate, acute, the 3 smaller lanceolate, acute, all of about the same length. Upper lip of corolla about 13 mm. long, erect, entire, obtuse, the lower slightly longer, strongly recurved, its middle lobe about 12 mm. long and about half as broad, with rounded summit, the lateral a little shorter and narrower. Stamens nearly equaling the corolla, the lower anther-cell about 3 mm. long, exclusive of the obtuse hyaline basal appendage, its summit reaching about to the middle of the upper, which is a little shorter. Style shorter than the stamens. Disk annular, much thickened, 2 mm. high, the ovary sub-conical, about 4 mm. long, glabrous.

"A shrub, 4 to 6 feet high, common locally, in low and damp parts of the dry forest region below 1,000 feet. Collected near Mamatoca, 100 feet, Nov." (Herbert H. Smith, Colombia, No. 96.)

Jacobinia Lindaviana

A glabrous shrub, the branchlets short, stout and leafy. Petioles 3 mm. long, slender; blades 15–30 mm. long, 10–20 mm. wide, ovate, rounded at the base, obtuse at summit, dark-green, thickish, the veins dark, strongly-ascending. Flowers few, in the upper axils, subsessile, 2-bracteolate at the base of the calyx, the bracts minute, subulate. Calyx 10 mm. long, the lobes lanceolate, acuminate, acutish. Corolla-tube 15 mm. long, nearly straight, dilating very near the summit, the lobes partially destroyed by insects in my specimen. The short stamens equalling the corolla tube, the longer ones exserted, the lower anther cell with about two-thirds of its length below the base of the upper, which is short mucronate. Style not equalling the longer stamens, stout, sharply declined above.

Species dedicated to Dr. Lindan who has kindly confirmed my determination.

Collected at Playa Brava on the northern coast of Colombia, on a dry, rocky hillside on June 6, 1899, by Herbert H. Smith, who reports it as a foot high, and having crimson flowers. (No. 2821.)

Rondeletia colombiana.

Pilose with somewhat appressed hairs. Stems slender, quadrangular above. Stipules 1 cm. long, ovate, acuminate and acute, thin, brown. Petioles 2 cm. or more long, thin-margined. Blade (only one seen) 2 dm. long, 1 dm. wide, oval or ovate with both ends very abruptly short-acuminate, thin, bright-green, the slender venation prominent beneath, the secondaries about 12 on a side, the lower widely spreading, then falcate and erect, the upper erect-falcate, all coarsely pilose beneath, the remaining venation finely and strongly anastomosing. Panicle long and slenderly peduncled, loosely and openly branched, the bracts elongated, narrowly linear, the flowers inclined to be erect. Pedicels 3 to 5 mm. long. Calyx 7 mm. long, the ovoid tube nearly as long as the 4 lobes, which are slightly unequal, narrowly lance-linear and acuminate. Corolla-tube strongly pilose, 12 mm. long, slender, slightly enlarged two-thirds of the way toward the summit which is abruptly expanded into a short throat. Limb 8 mm. broad, sub-rotate, the lobes rounded.

"Forest, Sierra de Onaca, 5,000 feet. A tree 20 feet high. This appears to be the normal form, the specimen from Las Nubes being from more or less stunted plants in second growth." (Herbert H. Smith, Colombia, No. 1813, in part.) Mr. Smith's note refers to other specimens sent under the same number. The two species are, however, obviously distinct, though closely related.

Rondeletia ovata.

Inflorescence, lower leaf-surfaces, etc., gray-pilose with appressed hairs. Stipules nearly 1 cm. long, lanceolate, acuminate. Petioles to 12 mm. long, broad, keeled. Blades 1 to 1.5 dm. long, 4 to 7 cm. broad, with very abruptly contracted and very shortly produced acute base and abruptly acuminate and acute summit, entire, thin, drying brown, the venation prominent beneath, the secondaries about 12 on a side, strongly falcate-ascending, rather stout, connected by numerous straight, stoutish, short tertiaries. Panicle terminal, at length loose and open, the bracts narrowly linear, to 7 mm. long. Pedicels 3 or 4 mm. long, rather stout, slightly thickened at the summit.

Calyx-tube, in flower, 2 mm. long, obovoid, the 4 lobes lanceolate, acuminate, acute, the midrib strong, unequal, the longest 4 or 5 mm. long. Corolla salver-form, the tube 12 mm. long, very slender, about a half thicker just above the middle, pilose like the calyx, the limb 9 mm. broad, the 4 lobes nearly rotund. Filaments 4 mm. long, pilose, wholly adnate to the base of the corolla, the anthers 3 mm. long, linear-oblong, attached about the middle. Style stout, bifid, the branches exserted, 2.5 mm. long, flattened.

"A shrub or small tree, to 15 feet, the flowers deep-pink in December. Moderately common in thickets near a stream. Las Nubes, 4,500 feet." (Herbert H. Smith, Colombia, 1813 in part.)

Species near *R. erythroneura* Karst, but the flowers much more slender.

Elaeagia obovata.

Inflorescence and veins of the lower leaf-surfaces puberulent. Stipule-vestiges very short, connecting at the base, the margin bearing short and stout black, apparently glandular teeth. Petioles 1 to 2 cm. long, very stout, dark-brown, shallowly channeled above. Blades (but one seen) 25 cm. long, 14 cm. broad, obovate with acute base and abruptly acuminate summit, the acumination very short and broad. Venation strongly prominent beneath, the secondaries 20 to 25 on each side, widely spreading and lightly curved, and obscurely connecting at the margin, regularly connected by numerous slender but prominent tertiaries. Panicle (but one seen) 17 cm. long, 10 cm. wide, the stout peduncle 2.5 cm. long, loosely branched and rather sparsely flowered, the flowers sessile. Calyx urceolate-campanulate, 1.5 mm. long and a little broader, the lobes extremely short and broad, the tube somewhat angled or ribbed. Corolla about twice as long as the calyx (but one seen), divided nearly to the base, hairy-tufted just below the sinuses.

Yungas, Bolivia, 6,000 feet, 1885." (Rusby, No. 2447.)

Originally published as "*Chimarrhis* sp."

Elaeagia mollis.

Softly pubescent throughout, the branchlets stout. Interpetiolar stipules united when young, the united pair about 12 mm. long, ovate, acuminate and cuspidate, rigid, finely nerved, later separating nearly to the base and at length deciduous, leaving a short, interpetiolar base that subtends numerous conical papillae. Petioles about 2.5 cm. long, stout, narrowly grooved above, the blades 12 to 18 cm. long, 6 to 10 cm. broad, oval with slightly produced and acute base, the summit not

seen, thin, soft-hairy on both surfaces, especially beneath, where the venation is prominent, the secondaries about 20 on each side, slender, little ascending and very little curved, connected by numerous tertiaries.

Specimen in young fruit, the peduncles 5 or 6 cm. long, slender, somewhat quadrangular, the panicle bearing a basal pair of long and slender branches, densely flowered at the ends, the flowers sessile or very shortly pedicelled. Fruiting calyx-tube turbinate, strongly annulate at the summit, by the base of the limb, which is irregularly and shortly 5-toothed.

Yungas, Bolivia, 6,000 feet, 1885 (Rusby, No. 2446).

Distributed as "*Chimarris*, sp. n."

Lygistum tomentosum.

Tomentose, the young branchlets more or less ferruginous, the branchlets stout, with crowded leaves. Stipule interpetiolar, broadly deltoid-ovate, acuminate, nearly equalling the petioles, ferruginous, like the inflorescence, petioles, etc. Leaves very thick, 2 to 4 cm. long, 1.5 to 2 cm. broad, varying from oblong to ovate, with rounded base and acute summit, the finely reticulate venation strongly impressed on the upper surface. Peduncle about as long as the petiole, stout, several-flowered, the flowers shortly and stoutly pedicelled. Flowering calyx 6 mm. long, the lobes about as long as the turbinate tube, triangular ovate, acutish, thick. Corolla apparently deep purple, the tube about equalling the calyx, the limb about as long as the tube. Mature fruit 6 or 7 mm. long and nearly as broad.

"Growing in water at Unduavi, North Yungas, Bolivia, 3,300 M. altitude, December 2, 1907. (Otto Buchtien, No. 620.)

Gonzalagunia acutifolia.

Pilose with appressed hairs and somewhat sericeous. Stipules 4 mm. long, the base triangular-ovate, the summit setaceous. Petioles 3 mm. long, slender, the blades 5 to 10 cm. long, 2 to 3.5 cm. wide, ovate or lance-ovate and mostly a little inequilateral, with rounded or blunt base and acuminate and acute summit, thin, the venation not prominent, the secondaries slender, about 7 on a side, strongly falcate-ascending, the venation coarsely reticulating, obscure. Spikes to 1 dm. long, very loosely flowered, the fascicles sessile, 1 to 5-flowered, the flowers very shortly pedicelled, densely long-pilose throughout, the bracts narrowly linear. Tube of the flowering calyx 1 mm. long, globose, the lobes about as long, subulate, erect-spreading, later recurved. Corolla 4 or 5 mm. long, the tube narrowly infundibular, the 4 lobes very unequal, lance-ovate, acuminate

and acute, erect-spreading. Dissection material wanting. Capsule 2 mm. long, 3 mm. broad, 4-lobed, tipped by the persistent, strongly recurved calyx-lobes.

"A shrub, to 8 feet, with white flowers. Observed only in the forest district, adjoining the coast, and extending to the slopes of the Sierra Nevadas, 30 to 50 miles east of Santa Marta, below 1,500 feet. Moderately common." (Herbert H. Smith, Colombia, No. 99.)

Posoqueria platysiphonia.

Lower leaf-surfaces bearing scattered, short, appressed hairs, otherwise glabrous. Branchlets slender, striate, compressed or dilated slightly at the nodes. Stipules 1 cm. long, entire, obtuse, connate to form a cylindrical sheath. Petioles (only the upper seen) to 1.5 cm. long, stout, grooved above, the groove extending into the midrib. Blades 1 to 2.5 dm. long, 5 to 12 cm. broad, oval to obovate with obtuse base and very abruptly pointed summit, the point as broad as long and acute; entire, thin, deep-green, the venation slightly prominent beneath. Secondaries about 7 on a side, very slender, strongly ascending, obscurely connecting at the margin, connected by few crooked loosely branching tertiaries. Peduncle terminal, short, stout, coarsely angled, the cyme few-flowered. Pedicels 1 to 2 cm. long, stout, coarsely angled. Calyx open-campanulate, 6 mm. long and broad, 5-costate and 5-nerved, the margin equally 5-lobed, the lobes extremely short and broad, with rounded, very short-ciliate margin. Corolla-tube to 13 or 14 cm. long, 7 mm. broad as pressed, the upper portion slightly and gradually contracted, many-sulcate, the limb 2-lipped, obliquely turned in the bud, the lobes imbricate, 15 to 20 mm. long, broad and rounded, densely long-pilose at the base, at length reflexed. Stamens exserted, reflexed, the filaments slender, the anthers puberulent, 7 mm. long, linear-oblong, mucronate, the cells acute at the base.

"A small tree with long drooping branches, to 20 feet, the flowers creamy white. In damp forest on mountain-side near Valparaiso, about 4000 feet, July 5. Only one seen." (Herbert H. Smith, Colombia, No. 1655.) Species very near *P. Metensis* (Karst.) *n. c mb.*, but differing in calyx-teeth, in the pilose corolla-lobes and the stipule-characters.

Randia orinocensis.

(Fruiting specimen). Glabrous except the young portions, which are obscurely strigose. Stipules ovate, acuminate and pungent, 3 mm. long. Petioles about 4 mm. long, channeled above, narrowly margined. Blades 3.5 to 10 cm. long, 2 to 5

cm. broad, lance-oblong, acuminate and acute at both ends, entire, thin, deep-green, the venation impressed on the upper shining surface, strongly prominent beneath, the slender secondaries about 8 on a side, falcate-ascending, connecting at some distance from the margin, the remaining venation very loosely reticulate. Fruit sessile at the base of a terminal leaf, mostly recurved, 5 cm. long, broadly oval, finely many-nerved, brown, smooth, the base rounded, the summit tipped by the calyx-tube, about 4 mm. long, with short teeth. Seeds compressed, irregularly triangular with obtuse angles, 7 to 9 mm. long and nearly as broad, light-brown, the surface granular-roughened.

"Catalina, lower Orinoco, Venezuela, May 1896." (Rusby and Squires, No. 222.) No. 173 is the same, without flowers or fruit.

Duroia sprucei.

(Fruiting specimen)

Glabrous, the branchlets stout, blackish, the concave leaf-scars crowded, 4 mm. wide, lightly obcordate, connected by narrow stipule-bases. Interpetiolar stipules imperfect in my specimen, apparently retuse at the summit, finely ciliate. Petioles 12 to 15 mm. long, stout, channeled above and keeled beneath, the blades 10 to 13 cm. long, 4 to 5 cm. broad, oblanceolate with acuminate base gradually contracted into the petiole, and rounded or blunt summit, entire, thick and coriaceous, drying brown, somewhat shining above, the slender venation sharply prominent beneath, the secondaries about 10 on each side, strongly ascending and little falcate, connecting at or very close to the margin, the venation very finely and strongly reticulate. Fruit sessile, 5 cm. long, 3 cm. broad, produced at the base into a very short stout stipe, and tipped with a calyx-tube 4 mm. long and 6 mm. broad, glabrous and somewhat shining, wrinkled.

Sacupana, lower Orinoco, Venezuela, April, 1896 (Rusby and Squires, No's. 171 and 172.) The same as Spruce's 3624.

Alibertia granulosa.

Glabrous. Branchlets short, widely spreading, terete, wrinkled, purplish. Stipules connate, about 6 mm. long, ovate, acute, membranaceous. Petioles 1 to 1.5 cm. long, broad, the blades 8 to 16 cm. long, 3 to 6 cm. broad, oblong with obtuse base and abruptly acuminate and obtuse summit, thickish, the venation slender, conspicuous on the lower surface, the secondaries about 8 on a side, moderately ascending, and lightly curved, not connecting, the remaining venation obscure. Fruit sessile, globose, about 2 cm. broad, brown, granula-roughish (becoming smooth ?), the calyx-tube 4 mm. long, 3 mm. broad.

"Santa Catalina, lower Orinoco, Venezuela, May, 1896" (Rusby and Squires, No. 174).

Hoffmannia striata.

Glabrous. Branches erect, stout but weak, herbaceous, the internodes about 4 cm. long, the leaves sub-erect. Stipules interpetiolar, 4 mm. long, broadly ovate, acute. Petioles 2.5 cm. long, very slender, passing gradually into the leaf-base. Blades 10 to 15 cm. long, 3 to 4 cm. broad, lance-oblong, with regularly long-acuminate base and abruptly acuminate and acute summit, very thin, very deep-green, the margin entire or somewhat sinuate, the venation not prominent, the secondaries about 12 to 15 on each side, widely spreading, then strongly upcurved toward the ends. Inflorescence scanty, the cyme (but one seen) slightly paniculate, the peduncle shorter than its leaf, the branches few-flowered, the bractlets broadly ovate, acute. Flowers shortly and stoutly pedicelled. Calyx campanulate, scarcely 1 mm. long, shortly-toothed. Corolla 2 mm. long, broadly campanulate, the lobes broadly ovate, obtuse.

Dissecting material wanting.

"In forest, Sierra del Libano, 5,500 feet, May. I have but two specimens, without other note." (Herbert H. Smith, Colombia, No. 2409.)

Hoffmannia viridis.

Lower leaf-surfaces very sparsely and minutely pilose. Branches stoutish but weak, erect. Stipules caducous, not seen. Petioles to 5 cm. long, passing gradually into the leaf-base, thin and flat-nerved. Blades 15 to 20 cm. long, 6 to 8 cm. wide, oval, abruptly acuminate and acute at both ends, the basal acumination much longer, very thin, very deep-green, pale beneath, the venation not prominent, the secondaries about 12 to 15 on each side, widely spreading, then strongly falcate. Cymes shortly peduncled, loosely and openly few-flowered, the pedicels filiform, to 5 mm. long. Flowering calyx-tube campanulate with the summit slightly contracted, 2 mm long, the limb abruptly expanded, 5-toothed, the teeth broadly triangulate, acute; in fruit obovoid, 5-ribbed. Corolla not present.

"A shrub, to 5 feet, with white flowers. A single plant observed in a ravine in mountain forest, Don Amo Estate, 3,000 feet, January 18." (Herbert H. Smith, Colombia, No. 2649.)

Guettarda discolor.

Young portions and lower leaf surfaces softly gray-pubescent, the upper leaf-surfaces bearing a few scattered appressed hairs. Branchlets stout, the short hairs strongly reflexed and

somewhat yellowish. Stipules 15 mm. long, broadly ovate, acuminate and acute, thin, brown, early deciduous. Petioles to 2.5 cm. long, nerved or lightly costate toward the base, the summit gradually widening into the leaf-base. Blades 7 to 10 cm. long, 3 to 5 cm. broad, oval or ovate and abruptly acuminate and acute at both ends, thickish, light-gray beneath, with the venation strongly prominent, deep-green above, the secondaries 9 or 10 on a side, strongly falcate-ascending and connecting near the margin, connected by numerous rather crooked tertiaries. Peduncles, in flower, about 2.5 cm. long, slender, bifid, the branches of about equal length, strongly recurved, each bearing a single dense row of flowers, on very short and stout pedicels. Calyx nearly 2 mm. long and broad, campanulate, obscurely ribbed, the margin minutely toothed. Corolla-tube 12 mm. long, narrowly infundibular, the 5 lobes valvate, with the summits strongly inflexed. Open flowers not seen. Anthers attached by very short filaments, oblong. Stigma 2-lobed.

"In mountain forest, Sierra del Libano, 5,500 feet, March 2. Collected from a fallen branch, its tree not found." (Herbert H. Smith, Colombia, No. 1809.)

Guettarda roupalaefolia.

Petioles, lower leaf-surfaces and inflorescence softly gray-tomentellate. Branchlets stoutish, terete, purple, marked with large heart-shaped, slightly elevated leaf-scars. Stipules about 6 mm. long, ovate, acuminate, thin, brownish, caducous. Petioles to 5 cm. long, slender, somewhat dilated at the articulated base, blades 1 to 2 dm. long, and 6 to 10 cm. broad, broadly ovate, some as broad as long, with the base very abruptly contracted into the petiole and the summit very abruptly short-acuminate and acute; thin, entire, gray-green beneath, green and pilose above, the venation slightly prominent above, the secondaries about 12 on a side, besides some minor ones, very slender, the lower doubly curved, the others widely spreading, strongly upcurved and looped together at the ends. Peduncles axillary, mostly where the leaves have fallen, slender, about 4 or 5 cm. long, widely spreading or mostly somewhat drooping, the summit shortly bifid, the branches cymosely several flowered. Bracts setaceous, brown, 4 or 5 mm. long, deciduous. Flowers sessile, the calyx articulated at the base, campanulate, somewhat quadrilateral, 3 mm. long, the margin sinuately lobed, lightly everted in flower. Corolla pubescent, salver-form, the tube 12 mm. long, 2 mm. wide, somewhat dilated toward the summit, sulcate, the 6 lobes 6 mm. long, 4 mm. wide, oval with rounded summit. Stamens 6, the anthers sessile, reaching the base of the corolla-lobes, 4.5 mm. long, linear, widening slightly

upward, acute, Style stoutish, the stigma reaching nearly to the middle of the corolla-lobes, capitate, the summit concave.

"Three miles east of Masinga, June 12, the trees blossoming freely, the corolla pinkish. Minca, 2000 ft., July." (Herbert H. Smith, Colombia, No. 441.)

Mr. Smith sends another specimen with ripe fruit, collected at Masinga in November, saying "fruit of 441." This has much smaller leaves, with different summit, and will probably prove distinct. The following is its description.

Branchlets short, stoutish, dark-brown, the leaves crowded. Stipules 5 mm. long, 2 mm. broad, oblong, obtuse, strongly 3- to 5-nerved, rigid, pubescent, like the petioles, peduncles and lower leaf-surfaces. Petioles 10 to 20 mm. long, the blades 4 to 8 cm. long and half or more as wide, rhomboidally obovate, abruptly short-acuminate with rounded base, entire lightly pilose or pubescent on the veins above, the secondaries 10 or 12 on a side, slender, strongly ascending, slightly curved, sharply prominent underneath. Peduncles longer than the petioles, slender, spreading, bearing one to three fruits. Fruits 8 to 12 mm. long, two-thirds as broad, oval to sub-globose, deep purple, pubescent, the flesh abundant, drying to form a conspicuous wing-like margin, the persistent calyx-limb conspicuous, tubular.

"Near Madinge, 500 feet, November. Fruit dark crimson-purple."

Mapourea biacuminata.

Glabrous. Branchlets slender, very narrowly 2-winged toward the summit. Stipule 6 mm. long, ovate, obtuse, brown, deciduous. Petioles about 15 mm. long, stout, narrowly margined above. Blades 8 to 15 cm. long, 2 to 4 cm. broad, lance-oblong, regularly acuminate at the base, somewhat abruptly so at the acutish summit, thick, pale-green and somewhat glaucous, the margin thinly revolute, the very slender venation slightly prominent beneath, the secondaries 12 to 15 on a side, widely spreading, little curved, mostly with small pitted glands in their axils, the remaining venation indistinct. Panicle terminal, the peduncle mostly shorter than the flowering portion, sharply quadrilateral, the branches still more so, the bracts and bractlets small, ovate, acute, the flowers mostly very short-pedicelled. Calyx 2 mm. broad, very broadly campanulate, divided nearly to the base, the lobes triangular-ovate, acute, thick. Corolla-tube campanulate, 2.5 to 3 mm. long, the limb spreading or recurved, 7 or 8 mm. broad when fully expanded, the tube densely pilose within, the lobes ovate, slightly saccate

just below the whitish tip. Filaments very short, inserted into the margin of the tube, the anthers ovoid, exserted. Style about as long as the corolla-tube, thickened upward, the lobes short, flattened. Fruit globose, 3 mm. broad, the pyrenes 2, deeply 3-sulcate. Seed 3-grooved on the back, flat on the face or with several irregular slight, crooked channels.

"A tree to 20 feet, with white flowers in May and June, Occasional in dry forest, 500 to 2,500 feet. Collected at Minca, 2,000 feet, May 31 and in fruit at Escalera de los Indios, August 2." (Herbert H. Smith. Colombia, No. 1826.)

Mapourea latifolia.

Lower surface of the young leaves sparsely and minutely puberulent. Branchlets stout, terete. Stipules 6 to 8 mm. long, very broad, ovate, deciduous. Petioles to 4 cm. long, passing gradually into the narrow leaf-base. Blades 1 to 3 dm. long, 6 to 12 cm. wide, ovate with both ends very abruptly and shortly acuminate and acute, very thin, deep-green, obscurely crenate, the venation not prominent, the secondaries about 15 on a side, very widely spreading and little curved, not connecting, the remaining venation obscure. Inflorescence terminal, sessile, widely branched, the branches paniculate, rather densely flowered, the bracts minute. Flowers very shortly and stoutly pedicelled, the pedicels angled like the calyx-tube, which is campanulate, about 1 mm. long, the limb of about the same length, 2.5 mm. broad, very minutely toothed. Corolla-tube 3 mm. long and nearly as broad, cylindraceous, densely pilose within, the 4 lobes of nearly equal length, lanceolate, recurved, minutely horned on the back, near the summit. Stamens exserted, the filaments filiform, inserted into the throat. Style clavate, the stigmas flattened, oblong or ovate.

"A tree to 20 feet, with white flowers and pedicels. In damp forest, near stream. Cacagualita, 1,500 feet, May. Also in alluvial forest, Don Diego, near the coast, May 17. The one first-named is the type. (Herbert H. Smith, Colombia No. 1805). No. 2405, from "mountain forest near Cacagualita, 2,500 feet, June 16," appears to be the same.

Psychotria (Trichocephala) scabrifolia.

Coarsely hirsute and somewhat ferruginous. Stems stoutish but weak, the younger portions densely hirsute, leafy to the summit. Stipules obscured by the indumentum, lanceolate and terminating in a rigid, pungent, strigose awn, some of them nearly 1 cm. long. Petiole about 6 mm. long, very stout, the blades 6 to 10 cm. long, 1.5 to 4 cm. broad, lanceolate with acutish base and narrowly acuminate summit, entire, thick,

densely hirsute on the brownish lower surface and harshly strigose on the deep-green upper surface, the venation impressed above and very prominent beneath, the secondaries about 11 on a side, strongly falcate-ascending and strongly connected by numerous straightish tertiaries. Panicle terminal, small, very dense, flowers not present. Fruiting calyx 3 mm. long, 5-parted, the lobes linear, attenuate. Bracts 6 or 7 mm. long, lance-ovate. Pyrenes 5.

Mapiri, Bolivia, 2,500 feet, May, 1886. (Rusby, No. 2489.)

Psychotria albacostata.

Puberulent, the veins of the lower leaf-surfaces densely white-tomentose. Branchlets stoutish, quadrangular. Interpetiolar sheaths short, thick, truncate, the middle portion densely yellowish-pilose, the hairs coarse. Petioles 1.5 to 2 cm. long, stout, margined, the margins continuous with the interpetiolar sheath. Blades 18 to 25 cm. long, 6 to 10 cm. broad, oblong with cuneate base and abruptly short-acuminate and acute summit, entire, thickish, deep-green above with the very slender venation slightly prominent, gray-green beneath with the white pubescent secondaries very conspicuous. Secondaries about 25 on a side, besides partial or slender intermediates, strongly falcate, the finer venation obscure. Panicles axillary and terminal, small, short and broad, long-peduncled, the branches minutely bracted. Calyx 1.5 mm. long and broad, the tube about as long as the limb, urceolate, the limb campanulate, deeply toothed, the teeth white, ovate, acute. Open corollas not seen, the nearly mature bud short and broad, the tube very short.

" A shrub to 5 feet. Rare in mountain forest, 3,000 to 5,000 feet. December to March. Collected at Las Nubes, December 5, and at Manzanares, 3,500 feet, March 1." (Herbert H. Smith, Colombia, No. 1806.)

Psychotria olyphylla.

Pubescent, the upper leaf-surfaces puberulent on the midrib. Stipules about 1 cm. long, linear-lanceolate and long-acuminate, the intrapetiolar sheath bearing similar ones. Petioles 6 to 8 mm. long, margined, the blades 8 to 12 cm. long, 2.5 to 5 cm. broad, oblong or oval, abruptly acuminate at both ends, thickish, drying brown, entire, the venation very strong beneath, the secondaries 20 to 25 on a side with intervening short vestiges of ribs, at first divaricate, then falcate, connected by numerous stout rather crooked tertiaries. Panicle terminal, the stout quadrangular peduncle 2 cm. long, the panicle 7 cm. long, pyramidal, subulate-bracted. Flowers very shortly pedicelled or sub-sessile. Calyx 2 mm. long, 1 mm. broad, the tube

turbinate, the teeth nearly as long as the tube. Corolla-tube 3 mm. long, pubescent within and without, straight, not gibbous, the lobes a third the length of the tube. Stamens included, sessile, attached about the middle of the corolla, the anthers linear, about as long as the corolla-lobes. Style equalling the corolla.

Yungas, Bolivia, 6,000 feet, 1885. (Rusby, No. 2111.) The same as Williams No. 558.

Psychotria sanmartensis.

Glabrous. Branchlets quadrilateral above, the internodes less than half the length of the leaves. Stipules forming a close axillary sheath with broad, white, scarious, deciduous margin. Peioles 7 or 8 mm. long, margined, consisting of the narrowed leaf-bases. Blades 8 to 12 cm. long, 3 to 6 cm. broad, lance-ovate, mostly inequilateral, abruptly acuminate and acute at both ends, contracted into a petiole-like base, thick, deep-green above, yellowish beneath, the venation prominent on both sides, very strongly so beneath, the secondaries 7 to 9 on a side, stout, crooked, spreading, then strongly falcate and connecting by marginal loops, connected by few crooked tertiaries. Panicle terminal, short and broad, densely branched, the peduncle about half as long as the floriferous portion, the branches minutely subulate-bracted. Flowers in three's, the middle sessile, the lateral unequally short-pedicelled. Calyx 1.5 mm. long and broad, the tube turbinate, the hyaline limb spreading, obscurely toothed. Corolla-tube 3 mm. long, cylindraceous, two-thirds as broad, the throat scarcely 2 mm. long, the lobes as long as tube and throat, oblong-linear, the tip minutely inflexed, the midrib prominent on the face. Filaments attached at the densely pilose summit of the tube, elongated, slender, attached about the middle of the linear anther, which is 3 mm. long and wholly exserted. Style 3 mm. long, the branches nearly as long, the stigmas small, ovate, flattened. Disk annular, obscurely 5-lobed.

"A tree to 25 feet, in forest at Las Partidas, 3,500 feet, March 18." (Herbert H. Smith, Colombia, No. 1829.)

Apparently the same collected by Holton (No. 422) and Triana (No. 77.)

Psychotria indulgens.

Glabrous and shining, the branchlets terete. Stipules deciduous, and not seen, except the interpetiolar sheath, which is short, thick and more or less fimbriate. Petioles 1.5 to 2 cm. long, stout. Blades 10 to 20 cm. long, 4 to 8 cm. broad, ovate-oval, mostly a little inequilateral or falcate, abruptly produced into the petiole and abruptly contracted at the summit into a

short, acute acumination which is mostly oblique; thin, but rigid, yellowish-green, the venation very slightly prominent above, sharply so beneath, the secondaries 6 to 10 on each side, with an irregular number of short intermediates, slender, crooked, strongly falcate and obscurely connecting by a series of loops near the margin, and connected by crooked tertiaries with the intermediate secondaries. Panicle terminal, broadly and openly branched, the peduncle nearly as long as the floriferous portion, the branches obscurely quadrilateral, subtended by extremely short, broad scales. Flowers mostly in three's, subtended by a pair of small bractlets, the middle flower sessile, the lateral shortly and stoutly pedicelled. Calyx 1.5 mm. long and broad, the tube turbinate, the limb spreading, very shortly toothed. Corolla-tube proper 3 mm. long, 2 mm. wide, cylindraceous, sharply angled, the throat a little broader, two-thirds as long, pilose like the lobes, which are 3 mm. long, lanceolate, thick, spreading or recurved, the point abruptly inflexed, the midrib prominent. Corolla puberulent within, long-pilose in the throat. Filaments short, inserted at the summit of the tube, the anthers 2.5 mm. long, linear, attached about a third of the way from the base, the summits exserted. Style stout, the stigmas large, flattened, oval, a little more than 1 mm. long, Disk annular, very slightly crenate. Fruit depressed-globose, 5 or 6 mm. broad, obtusely 10-ribbed, tipped by the persistent inflexed calyx-limb, the conspicuous circular disk half as broad as the calyx-limb. Pyrenes finely puberulent, lightly 3-ribbed on the back and one-grooved on the face. Seed grooved upon the face.

"A tree to 35 feet, the flowers, pedicels and berries white, the latter about ⅓ inch in diameter. Common locally in mountain forest, 3,500 to 5,000 feet, January to May. Collected at Valparaiso, 4,500 feet, April 11. (Herbert H. Smith, No. 1828.)

Psychotria salicifolia.

Inflorescence sparsely and minutely puberulent. Stipules short, ovate, mostly with the summits involute, connected by an interpetiolar sheath with truncate summit. Petioles about 4 mm. long, margined, the blades 10 to 15 cm. long, 2.5 to 4 cm. broad, lance-oblong, acuminate and acute at both ends, entire, thickish and rigid, brownish above, bright-green beneath, the venation prominent beneath, the secondaries about 25 on each side, nearly divaricate, the ends sharply falcate and obscurely connecting, the finer venation obscure, slightly impressed beneath. Panicle terminal, in my specimen 5 cm. long, sessile, narrow and interrupted, densely flowered, the flowers sessile. Calyx about 1 mm. long and broad, the tube hemispherical, the

teeth very short and broad, obtuse. Corolla-tube 5 mm. long, 2 mm. wide, as pressed, straight, equal, pilose within, the lobes 3 mm. long, triangular-ovate, acute, strongly recurved. Filaments extremely short, inserted at the summit of the tube, the anthers linear, nearly as long as the corolla-lobes, half exserted.

Specimen unique, collected in Bolivia by M. Bang, without number, locality or date, but probably from near Cochabamba.

Palicourea populifolia.

Glabrous. Branchlets terete, striate. Interpetiolar stipules 6 mm. long, broadly ovate, abruptly acuminate and acute, the axillary ones scarcely as long, linear, carinate. Petioles 5 to 7 cm. long, slender, strongly nerved or sulcate. Blades 12 to 15 cm. long, 8 to 10 cm. broad, ovate with the base broadly rounded or sub-truncate and abruptly produced into the petiole, and with abruptly very shortly and broadly pointed obtuse summit, thin, deep-green, the venation lightly prominent, the very slender secondaries 15 to 17 on a side, with faint intermediate ones, sub-opposite, sub-divaricate, little curved and abruptly upcurved and connecting near the margin. Panicle (fruiting) terminal, 15 cm. long, the stout, many-nerved peduncle nearly a fourth of this length, pyramidal, the ultimate branchlets filiform, very sparsely and minutely bracteolate. Flowers in 3's, all pedicellate, the pedicels minutely bracteolate near the base, filiform, once or twice the length of the fruit. Fruit depressed-globose, 3 or 4 mm. broad, somewhat flattened, deeply 3-sulcate on each side, tipped by the persistent, very small, shortly 5-toothed calyx-limb and the hemispherical disk. Pyrene deeply grooved on the face.

"A tree, 20 feet high, in mountain forest above Las Nubes, 5000 feet, December 17." (Herbert H. Smith, Colombia, No. 1833.) Apparently the same collected by Purdie at Santa Marta and perhaps by Spruce at Tarapota.

Palicourea abbreviata.

Sparsely puberulent, the veins of the lower leaf-surfaces pilose. Branchlets stout, obtusely quadrangular and sulcate, densely leafy. Stipules forming a strong, thick sheath 4 mm. long, bearing 4 linear-acuminate ligules of equal length. Petioles 4 to 6 mm. long, very stout. Blades 3.5 to 7 cm. long, 2 to 4 cm. broad, ovate with the obtuse base abruptly produced into the petiole and with an abruptly acuminate obtusish, mostly oblique summit, very thick, the venation faintly impressed on the upper surface, strongly prominent beneath, the secondaries stout, about 10 on a side, very strongly falcate, connected by many crooked tertiaries. Thyrse terminal, about 5 cm. long, subsessile, dense, bearing small, ovate, obtuse, hyaline or scarious

deciduous bractlers, the branches short, very stout, angled or costate, yellow or orange. Calyx fleshy, articulated to the pedicel, 3 mm. long and broad, the tube campanulate, costate, the lobes short and broad, obtuse or acute. Corolla fleshy, thick, 9 mm. long, gibbous at the base, infundibular, 5-angled, the teeth short and broad, erect or spreading. Filaments inserted at the summit of the pilose tube, attached near the base of the anther, which is wholly included, linear, 5 mm. long, the mucn thickened black connective extending to the summit. Disk tnick, fleshy, cup-shaped, with the mouth much contracted.

"A gnarled tree, 10 feet high. Top of San Lorenzo ridge, about 7,500 feet, March (Herbert H. Smith, Colombia, No. 1815).

Apparently the same as Triana's No. 1653.

Palicourea caloneura.

Lower leaf-surfaces more or less pilose. Branchlets stout, terete, purple, densely leafy to the summit. Interpetiolar stipules 4 or 5 mm. long, broadly ovate and abruptly contracted into a narrow summit, the broad lower portions connate. Petioles 3 to 5 mm. long, stout, winged, narrowly grooved above, the groove extended into the midrib. Blades 4 to 6 cm. long, 1.5 to 2.5 cm. wide, oblong, acute at both ends, sharply revolute on the margin, thick, yellow-green, the venation lightly prominent above, very strongly so beneath, the stout secondaries 15 to 17 on a side, widely spreading, then falcate, connected by the crooked tertiaries, pilose with divaricate hairs. Thyrse terminal, sessile, small, little exceeding the upper leaves, sparsely subulate-bracted. Calyx 1.5 mm. long and broad, the tube turbinate-campanulate, the teeth extremely short, obtuse. Corolla-tube 5 mm. long, narrow, cylindrical, gibbous at the base, strongly nerved, the throat 2 mm. long, campanulate, the lobes 2 mm. long, lanceolate, acuminate, more or less recurved, the tips inflexed. Stamens inserted at the somewhat contracted summit of the tube, which is lightly pilose, the filaments short, the linear anthers about as long as the corolla-lobes, attached near the base to the filament, slightly exserted, Style-branches a third the total length of the style, the branches flattened, the stigmas with rounded summits. Disk large, the summit rounded.

"A shrub, 2 to 4 feet high, the flowers dull pinkish. Extreme top of San Lorenzo Ridge, 7,200 feet, February 27." (Herbert H. Smith, Colombia, No. 1808.)

Palicourea Williamsii.

Glabrous except the densely pubescent flowers. Branchlets slender, terete. Stipules interpetiolar, 6 or 8 mm. long,

ovate. Petioles about 2.5 cm. long, the blades (only the upper seen) 20 to 25 cm. long, 8 to 10 cm. wide, oblong, short-acuminate and acute at both ends, entire, thin, deep-green, the very slender venation prominent beneath, the secondaries about 15 on a side, besides short intermediate ones, widely spreading, then strongly falcate, the finer venation loosely reticulate. Panicle terminal, 18 cm. long, the peduncle a third of this length. pyramidal, loosely branched and flowered, without bracts, the bractlets sparse, subulate, very small. Pedicels filiform, 6 mm. or less long. Calyx-tube turbinate, longer than the triangular-ovate teeth. Corolla infundibular, 1 cm. long, the tube slightly gibbous at the base, the lobes ovate, erect, small. Stamens inserted about the middle of the corolla, the filaments glabrous, about half the length of the linear anthers, which are 2 mm. long, the style very slightly exceeding them.

"A large bush with smooth, livid-green branches. San Buena Ventura, 1,400 feet, November 3, 1901." (R. S. Williams, Bolivia, No. 663.)

The same collected by Pearce in Ecuador.

Rudgea longirostris.

Glabrous. Branches slender, quadrangular. Stipules 6 mm. long, ovate, acute, the lower portions connate to a varying degree. Petioles to 15 mm. long, slender, sulcate. Blades 6 to 12 cm. long, 2.5 to 4 cm. broad, lanceolate with acutish base and somewhat abruptly acuminate and acute summit, the venation prominent beneath, the principal secondaries about 11 or 12 on a side, with intermediate shorter ones, strongly falcate-ascending and uniting to form a thickened margin, the remaining venation finely and strongly anastomosing. Panicle terminal, broad, very loose and open, the bracts very narrow, regularly attenuate from the base, the bractlets ovate and acuminate. Pedicels slender, some as long or longer than the flowers. Calyx 2.5 mm. long, the turbinate-tube less than half the length, the limb cupulate, broad, the margin very shortly toothed. Corolla salver-form, the tube 5 mm. long, cylindraceous, the throat a little dilated, obscurely ribbed, the 5 lobes about half the length of the tube, ovate, strongly recurved, strongly horned on the back near the summit. Stamens inserted into the strongly pilose tube of the corolla, the filaments short, the tips of the anthers exserted. Style exserted, shortly 2-fid, the branches recurved.

"A small slender tree or shrub, 6 to 15 feet high, with greenish-yellow flowers and blue berries. Moderately common in damp mountain forest. Sierra del Libano, about 6,000 feet, January 10." (Herbert H. Smith, Colombia, No. 1819.) No.

1821 is in part this species and in part a very small-flowered *Psychotria*, probably undescribed.

Coussarea grandifolia.

Glabrous, the branchlets stout, much wrinkled in drying, apparently somewhat fleshy, marked with large leaf-scars. Stipule 2 cm. or more long, thick, forming a cylindrical-closed sheath, the mouth very oblique. Petioles to 2.5 cm. long (only the uppermost seen.) Blades 1.5 to 2.5 dm. long, 8 to 15 cm. broad, obovate or oval with acute base and with a very abrupt, short and broad acumination at the summit, thin, light-green, the slender venation lightly prominent on both sides, the secondaries about 12 on a side, widely spreading, little curved and connecting at some distance from the margin, connected by a loose reticulum of the very slender tertiaries. Panicle terminal, much shorter than the leaves, shortly and stoutly peduncled, the branches thick, flattened, coarsely angled, the bracts triangular-ovate and acute, the flowers very shortly and stoutly pedicelled. Calyx-tube short, turbinate, the limb 2 mm. long and broad, cylindrical, the base abruptly spreading and indistinctly sulcate, the summit slightly expanded, very shortly and broadly 4-toothed, the teeth mostly mucronulate. Corolla-tube 6 to 8 mm. long, the lower half narrowly cylindraceous, the upper narrowly infundibular, the lobes 6 mm. long, lance-ovate, strongly recurved. Filaments wholly adnate to the pilose base of the corolla, the anthers 5 mm. long, linear, the summits slightly exserted, the basal portion of the cells separate below the point of attachment, obtuse. Style short, shortly 2-cleft.

"A tree 20 to 30 feet high, with white flowers. Moderately common in mountain forest, expecially in glens near streams, Valparaiso, 4,000 to 5,000 feet, April 11." (Herbert H. Smith, Colombia, No. 1830.)

Borreria Herbert-Smithii.

Sparsely pilose with coarse short hairs. Stems slender and rather elongated, sharply angled and sulcate, the internodes about 1 dm. long. Stipules connate, 7 or 8 mm. long, truncate, multi-setose, the setae rather shorter than the body. Petioles (narrow leaf-bases) 9 to 18 mm. long. Blades 5 to 10 cm. long, 12 to 25 mm. wide, lanceolate with abruptly contracted base and long-acuminate and acute summit, entire, thin, rather pale, the midrib and extremely slender secondaries prominent beneath, the latter about 7 on a side, very strongly ascending and nearly straight. Bracts about as long as the flowers, narrowly linear. Calyx 4.5 mm. long, campanulate, short-stipitate, the tube obovoid, the limb a third as long as the tube, the lobes 4,

equal, hyaline, lanceolate, obtuse. Corolla 2 mm. long, campanulate, lobed more than half-way, the lobes broadly ovate, obtuse, the stamens exserted, the filaments long. Capsule obovoid-oval, stipitate, compressed, setose, the margins acute, the calyx-lobes persistent and somewhat enlarged, rigid and acute. Seed oblong, compressed, tuberculate.

"Erect or ascending, to 2 feet, the flowers white. Local in open grasslands, 2,000 to 5,000 feet. Collected in Cuaco Mountains, 4,500 feet, April 27." (Herbert H. Smith, Colombia, No. 321.)

Siphocampylus rectiflorus.

Gray-tomentellate throughout, the calyx very slightly so. Suffrucicose, the branches ascending, slender, strongly ribbed and sulcate, the internodes unequal, mostly 2 to 4 cm. long. Petioles 8 to 12 mm. long, slender, the blades 4 to 6 cm. long, 1 to 2 cm. broad, ovate with rounded base and gradually acuminate acute summit, dentate with short triangular acute salient teeth and shallow concave sinuses. Pedicels solitary in the axils, half or more the length of the leaves, slender, spreading. Calyx-tube turbinate, about half as long as the limb, the lobes sub-equal, separate to the adherent portion, 10 to 13 mm. long, regularly acuminate from the base to the acute summit, entire, erect-spreading. Corolla lilac red, the tube 3.5 to 4 cm. long, narrowly and regularly infundibular, the inner lip nearly 2 cm. long, divided to the base into 2 linear obtuse lobes, the outer slightly longer, divided two-thirds or more of the way into 3-narrowly lanceolate sub-equal lobes. Two shorter anthers strongly and densely penicillate at the summit and bearing below this tuft, upon the back, a few coarse white bristles, the two adjacent to them similarly and more strongly barbed below, the central one densely penicillate toward its summit. Style at length well exserted and recurved, the stigma two-lipped, the upper lip rounded, large, the lower small, lightly lobed.

"Shrubby or suffrutescent and more or less diffuse, 3 feet." Occasional in damp clearings and open places along streams at about 4,500 feet. Collected at Las Nubes, December 5, (Herbert H. Smith, No. 1388).

Siphocampylus declinatus.

Younger portions of stems, petioles and veins of the lower leaf-surfaces bearing scattered, very short white hairs, otherwise glabrous. Branches erect, slender, strongly sulcate, the internodes unequal, averaging about 1 cm. long. Petioles 5 to 10 mm. long. Blades 5 to 8 cm. long, 1 to 2 cm. wide, ovate lanceolate with rounded base and long-acuminate summit, obsoletely coarse-serrate, thin, the principal veins strongly

ascending, the venation finely reticulate, impressed above, prominent underneath. Pedicels in the upper axils, 4 to 8 cm. long, bearing two lance-linear bracts at about the middle. Calyx divided almost to the base, the lobes about 2 cm. long, erect, slightly unequal, lanceolate, acuminate, coarsely serrate, reticulate veined. Corolla dull-red, whitish within, somewhat declined, the tube nearly 4 cm. long, infundibular, slightly inequilateral, the lower lobes a little more than 1 cm. long, lanceolate, acute, nearly equal, spreading or recurved, the upper lip shortly 2-lobed, the lobes narrowly lanceolate. Anthers about 8 mm. long, curved, the upper naked, the stigmas lightly exserted.

"Somewhat diffuse, the branches erect to 4 or 5 feet. Common on open lands of Sierra del Libano and San Lorenzo Ridge, 6,000 to 7,500 feet. Collected January 25 at about 6,500 feet." (Herbert H. Smith, Colombia, No. 1384.)

Centropogon foliosum.

All young portions and both leaf-surfaces densely yellowish-tomentose, the older portions more sparsely so. Stems erect, stout, flexuous, coarsely sulcate, densely leafy above. Petioles 3 to 5 cm. long, stout, ascending, the blades 10 to 15 cm. long, 4 to 6 cm. broad, ovate, abruptly contracted into the petiole, rather abruptly acuminate at the acute summit, obscurely serrate-dentate, the teeth minute; thin, yellowish-green, the principal secondaries about 15 on each side, strongly falcate, broad and flat, densely tomentellate, the upper surface less so. Pedicels solitary in the upper axils, 4 to 6 cm. long, stout. Calyx deltoid, the tube 4 to 5 mm. long and 10 or 12 mm. broad, with truncate and umbilicate base and contracted summit, the triangular acute lobes a little longer, appressed about the base of the corolla. Tube of the corolla about 3.5 cm. long, 12 mm. wide as pressed, the back fissured half-way, infundibular, straight and equable, or nearly so. Mouth only slightly open, both lips strongly curved, the upper nearly a half longer, its two lobes lance-ovate, acuminate and acute, the lower less deeply three-lobed, the lobes sub-equal, and of similar form to the upper. Stamen-column pilose, its exserted portion about 10 mm. long, the anthers nearly 1 cm. long, the lower strongly white-penicillate. Stigma large, pilose, sub-equally 2-lipped.

"Erect, 4 to 5 feet, the corolla orange-red. In damp clearings, Sierra del Libano, 6,000 feet, January 22" (Herbert H. Smith, Colombia, No. 1385).

Piptocarpha gracilis.

Lower surfaces of young leaves and other young portions minutely white-tomentellate. Branchlets slender, elongated,

widely spreading, sharply 5-angled, the internodes about 2.5 cm. long. Petioles very short, about as broad as long, the blades 5 to 10 cm. long, 2 to 4 cm. broad, inequilaterally ovate with broadly cuneate base and acuminate and acute summit, rather distantly serrate-dentate, with very small and short teeth, thin, the principal secondaries 5 to 6 on each side, very slender, light-colored, not prominent. Heads closely sessile, 6 to 7 mm. long and nearly 10 mm. broad, as pressed, the involucre broadly campanulate, about equaling the pappus, its scales in about 6 series, the outer successively shorter, varying from ovate to lanceolate, with attenuate, pungent, spreading or recurved summits, the inner with purplish-brown summits. Flowers 1 cm. long, the akene about one-sixth of the length, light-brown, hispid, obovoid, truncate, the pappus rather sparse and coarse, the outer about a fourth the length of the inner, which is nearly half the length of the puberulent corolla. Tube proper of the corolla about as long as the pappus, exceedingly slender, abruptly expanded into the limb, which broadens gradually to the summit, where the teeth are lanceolate, acutish, nearly 2 mm. long.

"Shrubby, 3 feet high. Open place by streams in the forest, 5 miles north-east of Bonda, about 150 feet, January 14. Flowers rosy." (Herbert H. Smith, Colombia, No. 1982.)

Addisonia boliviana.

Densely and somewhat harshly scurfy-puberulent. Branches erect, densely massed, virgate, slender, terete. Leaves (only the upper seen) 4 to 6 mm. long, 1 to 2 mm. wide, or 3 mm. if the revolute margins are flattened out, sessile, oblanceolate with tapering base and mucronulate summit, thick, the midrib strong, the margins strongly revolute, obscurely denticulate, gradually reduced to erect bracts on the short branchlets. Heads 1 cm. long, the involucre about two-thirds of the length, turbinate or narrowly campanulate, the outer scales successively shorter, all thick and rigid, lanceolate, acuminate and pungent, sub-carinate, purplish above. Akene, in the flowering stage, 2.5 mm. long, slenderly obconical, black, sharply angled, minutely hispid. Pappus purple, 6 mm. long, scanty, coarsely serrate, somewhat unequal. Corolla 9 mm. long, purplish, narrowly infundibular, the base slightly dilated, and gradually and slightly dilated above the middle, the lobes 1.5 or 2 mm. long, recurved, oblong, acutish. Stamens nearly equaling the corolla-tube, the anthers linear. Style divided nearly half-way, the branches long-exserted, recurved, moderately dilated and flattened upward.

Specimen unique, collected by Miguel Bang in Bolivia, without number, locality or date.

Dr. Robinson has discussed the validity of the genus *Addisonia*, referring it to a section of *Piqueria*. While strongly

disposed to defer to the judgment of one so familiar with this group, I can scarcely believe that so strong a generic *tout ensemble*, especially when supported by this second species, should fail of recognition.

Kanimia colombiana.

Scabrous throughout, the branches numerous, erect, stout, leafy at the summit. Petioles 4 to 6 mm. long, very slender, the blades 2 to 3.5 cm. long, 6 to 10 mm. wide, lanceolate with acutish base and acuminate and acute summit, entire, or with a few small sharp teeth, thin, deep-green above, yellowish or brownish beneath, the venation obscure on both surfaces, 3-nerved, the midrib strong, the laterals rather faint. Panicles contracted and head-like, densely flowered, somewhat leafy, 2.5 to 3 cm. broad and high. Heads very shortly and stoutly peduncled or sessile, 6 mm. long, the bracts thin, ovate, acute, nearly as long as the involucre, which is two-thirds the length of the head, the scales oblong, acute, thick and rigid, strongly ciliate or sub-fimbriate above. Akene, in flower, a little more than 2 mm. long, the serrate pappus a little less than 4 mm., the corolla-tube equaling the pappus, the lobes nearly a third as long as the tube, ovate, obtuse. Exserted portion of styles nearly as long as corolla-tube, flattened and broadened upward. Mature akenes not seen.

Label lost and locality doubtful, but probably collected by Rusby and Pennell near Girardot, Colombia, July, 1917.

Baccharis condensata.

Youngest portions and lower surfaces of the young leaves minutely and rather sparsely puberulent. Branches elongated and slender, reddish-brown, leafy, more or less angled or sulcate, the younger portions, like the peduncles and petioles, conspicuously striate or costate. Leaves 7 to 10 cm. long, 12 to 30 mm. broad, the strongly cuneate petiole-like base more than a fourth of the total length, dilated at the insertion. Blades oblong-lanceolate, acute, entire, thick, deep-green, the slender venation lightly prominent on both sides, the midrib very strong on the lower surface, the secondaries sub-erect, the base decurrent upon the midrib. Corymbs subsessile, the fertile densely congested, with foliage leaves intermixed, the sterile openly branched, densely flowered at the ends of the branches.

Sterile Heads.—Involucre 5 mm. long, campanulate, the scales thick, appressed, acuminate and acute, the receptacle convex and papillose, the pappus sparse, coarse. Corolla-tubes equally cylindrical, slender, 4 mm. long, the strongly recurved, slender, fleshy, lance-linear lobes nearly half as long. Style-branches slightly exceeding the corolla-tube, with brown, obtuse, thickened appendages.

Fertile Heads.—Nearly twice the size of the sterile, the involucres more broadly campanulate or hemispherical, the scales obtuse, with broad brown middle portions and ciliate or fimbriate margins. Akene nearly 2 mm. long, obovate, compressed, with darker margins, the flat surfaces finely 3-striate, the pappus tawny, 5 or 6 mm. long, the corollas very slender, 2-toothed, a little shorter than the pappus.

"A shrub, 6 feet, near Ingles-Ingles, 6,000 feet altitude, Bolivia, August 16, 1902." (R. S. Williams, No. 1445.)

Baccharis densifolia.

Younger portions minutely strigose, otherwise glabrous. Shrubby, the branches stout, the branchlets weak and somewhat drooping, densely leafy, reddish, finely sulcate. Blades 2 to 4 cm. long, 1 to 2 cm. broad, oblong or oval, abruptly contracted into a short petiole, lightly serrulate with erect acute teeth, thickish, deep-green, lightly 3-nerved, the midrib impressed above, sharply prominent like the nerves underneath. Corymbs terminating the branchlets, small and few-flowered, the heads slenderly peduncled, about 5 mm. long, hemispherical-campanulate, the involucre nearly equaling the disk, its scales in about 5 series, ovate, obtuse, thick and rigid, appressed. Only staminate flowers seen. Pappus scanty, wavy, extending beyond the base of the corolla-lobes, about 3 mm. long, serrate, at the summit semi-plumose. Corolla-tube cylindric, stout, pilose, a little longer than the linear, acutish, recurved lobes, the limb campanulate. Style obscurely branched. Receptacle convex, nodose, naked.

"A shrub 3 to 5 feet high in open lands, San Lorenzo Ridge, 6750 to 7500 feet. January 26." (Herbert Smith, Colombia, No. 1997.)

Appears to be the same as Triana's No. 1281.

Gnaphalim multicapitatum.

Thinly white-tomentose, the branches pilose with coarse, soft, appressed white hairs, the upper leaf-surfaces minutely puberulent. Diffusely branched, the branches ascending, very slender, about 10 cm. high, the internodes about 2 cm. long. Stem-leaves 8 to 20 mm. long, 1 or 2 mm. wide, oblanceolate, acute, attached by a broad base. A single radical leaf is present, which is 5 cm. long and proportionately broad. Heads light-brown, densely glomerate and subsessile in the axils and at the ends of the branches, the glomerules 1 to 1.5 cm. broad. Involucres broadly ovoid before expanding, 3 or 4 mm. long, afterward more than twice as broad as long. Scales in two or three series, sub-glabrous, lanceolate, acute, light-brown with greenish middle portion, very thin. Involucre concave, foveo-

late. Akenes light-brown, oblong, slightly compressed, nearly 1 mm. long, minutely hispid. Pappus white, about 2 mm. long and about equaling the corollas, slightly united at the base. Corollas narrowly infundibular, the summit brown, shortly 5-lobed, the lobes broadly triangular-ovate, acute, lightly recurved.

('In clearing, 4,500 feet, December 18." (Herbert H. Smith, Colombia, No. 606.)

Clibadium latifolium.

Lightly scabrous. Branches slender, obtusely angled. Petioles 2 to 5 cm. long, slender, nerved, channeled above, attached by a broad base, the blades 8 to 15 cm. long, 4 to 10 cm. broad, ovate, the rounded base abruptly produced into the petiole, short-acuminate at the summit, lightly crenate-serrate, thin, deep-green, a pair of principal veins ascending from near the base, the venation very slender. Cymes in the upper axils and terminal, forming a broad panicle, long-peduncled, the heads somewhat crowded, subsessile, about 7 mm. long, the campanulate involucre half as long as the disk. Scales broadly ovate with rounded summit or sub-rotund, the margin minutely fimbriate. Outer corollas about two-thirds the length of the inner, narrowly and equally infundibular, 5-lobed, the lobes short, rounded at the summit, the long style-branches strongly recurved. Akenes obovoid, strongly compressed. Central corollas broadly cylindrical-campanulate, compressed and curved, about 3 mm. long, the lobes about one-third of the total length, erect, ovate, obtuse, fimbriate, the anthers black, exserted about half of their length, slightly exceeded by the undivided, strongly pilose style, their empty akenes oblanceolate, truncate and bearing 2 or 3 very small, weak, white setae.

"A shrub, 4 feet high, in open places in alluvial forest on banks of river Buritaca, 2 miles from the sea; the flowers white; September 25." (Herbert H. Smith, Colombia, No. 2014.)

Clibadium lanceolatum.

Strongly scabrous, except the lower leaf-surfaces, which are rather softly hairy. Branches slender, weak and flexuous, nearly terete, striate, light-brown, the internodes about 7 cm. long. Petioles slender, 1 to 2 cm. long, the blades 7 to 10 cm. long, 3 to 5 cm. broad, regularly lanceolate-acuminate with rounded base, finely serrate with mucronulate teeth, hispid on the upper surface, the venation sparse and very slender. Cymes long-peduncled at the ends of the branches and in the upper axils, broad and loosely branched. Heads 5 mm. long and broad, the scales almost equaling the flowers, broadly ovate, the summit rounded but with a slight point at the center. Pistillate corollas 2 mm. long, infundibular, curved, the ovate-

acuminate lobes about a fourth of the length, strongly recurved, the recurved style-branches long-exserted. Akenes oval, strongly compressed, short-stipitate, pilose. Sterile akenes turbinate, half as long as their corollas, bearing a pappus of fine, short, soft white hairs. Sterile corollas shorter than the fertile, broadly cylindric-campanulate, lobed a third of the way, the lobes ovate, obtuse, densely pilose. Anthers black, nearly equaling the erect corolla-lobes, the style about equalling the latter.

Collected by Herbert H. Smith in the Santa Marta mountains, but without number, locality or date.

Baltimora ovata.

Sparsely white-pilose on the inflorescence and younger portions and on the lower leaf surfaces, harshly strigose on the upper leaf-surfaces. Stems slender, 3 to 4 feet high, loosely branched, the branches very slender and sparsely leaved and flowered. Upper leaves only seen, their petioles slender, 5 to 20 mm. long, the blades 4 to 10 cm. long, 1.5 to 4 cm. broad, lance-ovate, abruptly short-acuminate at the base, long-acuminnate at the summit, lightly crenate-dentate or serrate, a pair of slender nerves starting from near the base, the venation not conspicuous. Inflorescence sparsely bracted, the peduncles filiform, mostly 10–15 mm. long. Heads 3 to 4 mm. long and broad, the involucre approximately hemispherical-cupulate. Involucral scales about 8, ovate or lanceolate, finely nerved and pilose, unequal. Ray-corollas wanting. Akenes of the ray-flowers 2 or 3, turbinate, the pappus of 5 sub-equal scales, the akenes at length about equaling the involucral scales, black, turgid, strongly tuberculate, the summit convex. Scales of the disk flowers 2 or 3, oval, nerved.

"Common on hot dry plains and rocky hills within 3 or 4 miles of the sea at Cienaga, Papare, Santa Marta, Braba, etc., September to November." (Herbert H. Smith, No. 536.)

Montanoa serrata.

Strigose throughout. Branchlets ascending, slender, sulcate, leafy, the upper leaves alternate. Petioles 1 to 1.5 cm. long, slender, mostly divaricate, or some recurved, the blades thin, 5 to 10 cm. long, 2 to 4 cm. broad, ovate, the base blunt, many of the smaller slightly inequilateral, regularly long-acuminate and acute at the summit, serrulate with mucronate teeth and acute sinuses, slenderly 3-nerved, the venation inconspicuous. Heads rather few, loosely paniculate, slenderly peduncled, 6 to 8 mm. long, exclusive of the rays. Involucre campanulate, about 4 mm. broad, and 6 mm. long, the scales 2 or 3 serialled, narrow, acuminate, erect or the tips slightly spreading. Rays

neutral, 2-toothed. Disk-scales nearly equaling the flowers, obovate, finely nerved, the summit abruptly contracted into a narrow, rigid, purplish, serrulate acumination, several minute teeth at either side of the otherwise rounded summit. Disk-flowers 6 mm. long, the black akene about a fourth of the total length, obovate, compressed, without pappus. Corolla 5-toothed, the teeth ovate, acutish. Anther-cells acute at the base. Style-branches elongated, recurved, acuminate.

"Open ground, in dry water-courses, near the coast at Playa Brava, April 1. Form of leaf constant in a long series of specimens." (Herbert H. Smith, Colombia, No. 516.)

Wedelia heterophylla.

Strongly strigose and very scabrous, the branchlets stout, costate, very leafy, the internodes 5 to 7 cm. long. Petioles 2 to 3 cm. long, broad, margined, channelled and costate. Blades 7 to 14 cm. long, 3 to 8 cm. broad, ovate, the very abruptly acuminate rounded base tapering into the petiole, long-acuminate and acute at the summit, coarsely and acutely serrate, thin, dark-green, slenderly 3-nerved, the venation inconspicuous. Outer involucre little exceeding the disk, of about 5 scales which are broadly ovate, acuminate, gray-strigose, the inner scales about equaling the disk, obovate with rounded, strongly ciliate summit, strongly 3-nerved. Disk about 1 cm. long and a half broader. Rays about twice the length of the outer involucre. Disk-flowers about the length of their acutish scales, the ovary half the length of the corolla, the pappus saucer-shaped, with strongly lacerate margin. Akene 4 mm. long, the fimbriate margin of its pappus erect, its margins strongly cartilaginous-thickened, its sides sharply keeled.

Species very near the next and possibly a variety of it, but the almost hispid leaf surfaces, the smaller heads with short, broad outer scales, and inner scales without the purplish acumination, indicate that it is distinct. Smith sends several collections under the same number, which differ considerably. One "from Bonda, July, is a shrub, 4 to 6 feet high," has the leaves only about half the size described above, another has them elongated-lanceolate. Of this Smith says "An erect shrub, 2 feet high, collected near Cacagualito, 1600 feet, November 15."

"Varies greatly in the form and pubescence of the leaves, size of flowers and habit. It may be a low compact shrub or sub-scandent to 6 or 7 feet. The rough stem and stiff curved hairs on the veins seem characteristic. Generally there are

little tufts of fine hairs in the axils of the veins." (Herbert H. Smith, Colombia, No. 515.)

Wedelia symmetrica.

Harshly strigose throughout, the hairs short and stout. Branchlets stout, coarsely and irregularly costate, the internodes 5 to 7 cm. long, all the leaves opposite. Petioles 10 to 15 mm. long, stout, channelled, long-pilose toward the base, the blades 7 to 10 cm. long, 2.5 to 5 cm. broad, lanceolate to ovate, the base more or less produced, the summit more or less, mostly long-, acuminate, acute, the margin serrate with small, sharp, erect teeth; thickish, dark green, lightly scabrous, 3-nerved, the lateral pair starting from near the base of the mid-rib, the other secondaries strongly falcate, the venation little prominent. Heads slenderly peduncled, erect, the disk 12 to 15 mm. broad and high, the rays exceeding it by nearly its own length. Outer involucral scales 4, unequal, some longer, some shorter than the rays, foliaceous, lanceolate, acuminate, the inner averaging about half as long, brown, thickish and rigid, not strigose, nerved, truncate, shortly 3-toothed. Receptacle slightly convex. Ray akenes 4 to 5 mm. long, 2.5 to 3 mm. broad, obovoid, the summit broadly and shallowly emarginate, compressed, lightly strigose, nerved and slightly tuberculate, the margin cartilaginous-thickened, light-colored. Pappus consisting of a flat disk with fimbriate spreading margin on a stout peduncle about half of its breadth. Ray corollas with tube nearly as long as the ovary and slightly broader upward, the limb oblanceolate, 3-toothed, the teeth lance-ovate, acuminate. Branches of the style filiform, exserted, about as long as the tube. Disk-flowers about 8 mm. long, the terete pilose ovary about a fourth of the total length, the corolla infundibular, slightly and equally broadened above, finely many-nerved, the ovate obtuse lobes nearly a third of the total length. Anthers black, half as long as the corolla, the basal auricles short, obtusish. Style-branches long exserted, recurved, long-pilose, acute.

"At Cinto on the north coast, March 22." (Herbert H. Smith, Colombia, No. 1975.)

Melanthera longipes.

Harshly strigose. Branchlets slender, weak and crooked, sulcate, the internodes about 1 dm. long. Petioles 2 to 4 cm. long, slender, channelled, striate, the blades very thin, bright-green, 7 to 10 cm. long, 4 to 7 cm. broad, ovate, the base sub-truncate, but slightly produced into the petiole, the summit abruptly acuminate and acute, the margin coarsely crenate-dentate, the slender, coarsely reticulate venation conspicuous, sub-tri-nerved. Heads few, shortly and slenderly peduncled,

the involucre hemispherical, 8 mm. broad, 6 mm. high, the base umbilicate, the scales in 2 series, green, strigose, broadly ovate, obtuse. Rays wanting, Scales of the disk 3 mm. long, not quite equaling the flowers, obovate, keeled, abruptly contracted into a short, blunt, broad point. Akenes (very young) small, about as broad as long, truncate, the pappus of about three coarse, caducous, crooked bristles, the longer nearly half the length of the corolla, which is broadly infundibular, the lobes about a fourth of its length. Style-branches elongated, appendaged with one or more long hairs.

"In open land near Cacagualita, 1600 feet, November 15. About 4 feet high." (Herbert H. Smith, Colombia, No. 2719).

Encelia soratensis.

Scabrous throughout, the stem erect, strongly costate, the branches slender, strongly ascending. Leaves sessile or with a very short ciliate petiole, 2.5 to 5 cm. long, 1 to 2 cm. broad, ovate with the base abruptly produced into the petiole, acuminate and acute at the summit, obsoletely serrate, thickish, deep-green, lightly bullate and harshly strigose above, paler and pilose underneath, 3-nerved, the lateral pair nearly basal and very near the margin. Heads solitary at the ends of the branches. long and slenderly peduncled. Involucre about 2 cm. broad, crateriform, umbilicate at the base, the outer scales in about 3 series, sub-equal, lanceolate, the tips recurved, the inner erect, oblong, obtuse, all strongly nerved, the disk 1.5 cm. broad, strongly convex, in fruit sub-globose. Exserted portion of rays 1.5 cm. long, oblong, slightly toothed, the lower portion lightly pilose externally. Scales of the disk 7 mm. long, lance-oblong, obtuse, about three-fourths the length of the flowers. Akene, in flower, half the length of the corolla, obovate, truncate, compressed, the longer awn about as long as the narrow portion of the corolla-tube, which is half the length of the akene and coarsely pilose and about one-fourth the total length of the corolla. Corolla-lobes short, ovate, acutish, slightly recurved. Style-branches recurved, flattened.

"In cultivated fields, Sorata, Bolivia, 7500 feet. October, 1902." (R. S. Williams, No. 1546.)

Encelia deltoidea.

Softly pubescent throughout, the hairs of the stem divaricate. Branchlets stout, erect, angled and striate, the internodes 6 to 8 cm. long. Petioles 1 to 2 cm. long, stout, 3-ribbed, subtended by inequilaterally ovate stipules about 6 mm. long and broad, with rounded summit. Blades 6 to 12 cm. long, 4 to 8 cm. broad, deltoid, the base sub-truncate but with a short very broad, cuneate projection into the petiole, the summit

acute; coarsely dentate, thin, pale-green, the 3 strong ribs continued into the petiole, the slender venation coarsely reticulate and not conspicuous. Heads short or long-peduncled, the peduncles slender. Involucre campanulate, in flower about 12 mm. long and broad, as pressed, the scales in about three series with the outer shorter, lanceolate and acuminate, but obtusish, strongly 3-nerved, the nerves green. Exserted portion of rays about as long as the involucre. Disk-scales a half longer than the akene, ovate, acute, scarious, strongly keeled, ciliate toward the summit. Akene 6 mm. long, strongly compressed, thinly margined, very sparsely pilose, obovate. Pappus of 2 slender setae two-thirds the length of the akene, with some very small ones interposed. Corolla about as long as the akene, the stout cylindrical base about a fourth of the length and half as wide as the abruptly expanded portion, the short, lanceolate acute teeth strongly recurved. Style slightly exserted, the acute branches strongly recurved. Stamens much shorter than the corolla, the anther-bases produced into acute mucros.

" A shrub 1 to 3 feet high, on seashore on dry rocks and occasionally in sand at Playa Brava, November." (Herbert H. Smith, Colombia, No. 594.)

Calea (Eucalea) congesta.

Roughish-hairy throughout, the leaves scabrous on both surfaces. Branchlets erect, leafy, reddish-brown, about 4-angled, the internodes only about half the length of their leaves. Petioles about 6 mm. long, broad, channelled above, the blades 3 to 5 cm. long, 2 to 4 cm. broad, ovate, the base rounded and slightly produced into the petiole, acuminate, obsoletely serrate, revolute, thick, strongly bullate, the venation strongly reticulate and very prominent underneath. Heads in short-peduncled, densely flowered axillary umbels or corymbs, the heads 2 or 3 times the length of their peduncles, 6 or 7 mm. long and about half as wide, the narrowly turbinate involucres nearly equaling the disk, its scales in 7 or 8 series, the outermost very small, ovate, green, thick, the others successively longer and relatively narrower, the innermost linear-lanceolate, scarious with green middle portion, all appressed and obtuse. Rays wanting. Akene about 1 mm. long, two-thirds the length of the pappus, narrowly turbinate, striate, minutely hispid, the pappus unequal, in a single series with a few minute setae between, distinct to the base, linear, acuminate but not finely attenuate, serrate, extending above the base of the corolla-lobes. Tube of corolla cylindric, about as long as the limb, which is parted to the base; the lobes linear, acutish, strongly recurved. Anthers about equaling the corolla lobes, their basal lobes acute. Receptacle elongated, nodose, its scales broadly obovate, abruptly acuminate, lacerate, extending about to the base of the corolla lobes.

Specimen sent as part of Herbert H. Smith's No 648 from Colombia, but distinct in every character except the size and form of the heads. No. 2617, from near Masinga Vieja, 1000 feet, December 20, is the same. Of this, Smith says: "Trailing or scandent, to 5 or 10 feet, along borders of forest. Previously confused with 648, which is a shrub and differs in the flowers."

Calea (Eucalea) Herbert-Smithii.

Very short-hairy and somewhat rough throughout, the upper leaf-surfaces scabrous. Stems shrubby, the branches slender, light-brown, shallowly sulcate, the internodes 4 to 8 cm. long, the branchlets mostly a little longer than their internodes, slender, terminating in corymbs 2 to 6 cm. broad. Petioles 1 to 2 cm. long, divaricate, the blades 5 to 8 cm. long, 2 to 4 cm. broad, ovate, sub-truncate at the base, acuminate and acute, coarsely serrate with very short, broad, ascending teeth and very small acute sinuses, pale-green, a pair of strong erect nerves originating near the base and quickly giving off a pair of smaller ones, the venation slender, coarsely reticulate and lightly prominent beneath. Corymbs consisting of one to three slenderly peduncled umbels of 5 to 10 heads on slender peduncles which are mostly slightly longer than the heads. Heads 6 or 7 mm. long and half as broad, the turbinate involucre nearly equaling the disk, of about 5 series of finely nerved obtuse scales, the outermost green and ovate, the others scarious, pale-green and lanceolate. Rays wanting. Akenes slenderly turbinate, obscurely angled, hispid, half the length of the pappus. Pappus in a single series, distinct to the base, reaching to about the middle of the corolla-lobes, of narrowly lance-linear attenuate scales, which are minutely serrulate and with a greenish central line, and with no setae intermixed. Corolla-tube cylindric, about 1 mm. long, the limb a half longer, abruptly campanulate, lobed two-thirds of the way to its base, the lobes linear-oblong, obtuse, strongly recurved. Anther slightly exceeding the extended corolla-lobes, the base of the cells acute. Style-branches long, exserted, strongly recurved. Receptacle elongated, nodose, its scales a half longer than the akenes, oblong, mucronate, and more or less lacerate toward the summit.

"A shrub 3 to 5 feet high, common in camps, 1000 to 3000 feet, flowering in December. Specimens from Onaca" (Herbert H. Smith, Colombia, No. 648).

Calea Holtoni.

Frutescent, 1 to 2 m. high, with spreading branches; hairy throughout, the hairs of the branches divaricate. Branches narrowly sulcate, the internodes about 1 dm. long. Petioles about 1 cm. long, divaricate or nearly so, the blades 3–6 cm.

long, 2–4 cm. wide, ovate, rounded to cordate at the base, acutish at the summit, coarsely serrate with short and broad teeth and narrow acute sinuses, the reticulate venation slender and lightly prominent beneath, one or two principal pairs of veins starting from near the base and strongly ascending; thin, soft-hairy beneath and scabrous above. Heads umbellate at the ends of the branchlets, solitary on slender peduncles which are 1 to 1.5 cm. long, the heads about 5 mm. long, sub-cylindrical when young, at length campanulate and nearly as broad as long. Involucre narrowly campanulate, about two-thirds as long as the disk. Outer scales green and rough-hairy, appressed, ovate and obtuse, the inner light-brown, sub-glabrous, nerved and obtuse. Rays absent. Disk-akenes 2 mm. long, narrowly turbinate, minutely hispid. Corolla-tube 2 mm. long, the lobes more than 1 mm. long, spreading or recurved, their pappus extending a little above the base of the lobes. Pappus-scales distinct, regularly attenuate from a broad base to a very fine point, strongly serrate or lacerate above. Scales of the receptacle nearly equalling the pappus, broadly obovate, finely nerved, the summit nearly truncate, strongly 3-toothed, the teeth subulate and attenuate and about a fourth of the entire length of the scale. Anther-bases obtuse. Style-branches long-exserted. strongly recurved.

"Common on campo-land below 3,000 feet. Collected 5 miles east of Bonda, September to October." (Herbert H. Smith, Colombia, No. 524.) The same as Holton's 353 from Colombia.

Species near *C. Moritzii*, but the pappus more slender and the leaves different.

Pectis rosea.

Glabrous; apparently perennial, the stems diffusely branched, the branches ascending, reaching 2.5 dm. in length, at first very slender, becoming rather stout and very leafy, sharply angled, the internodes mostly about 1 to 1.5 cm. long. Leaves simple, thick, spreading and lightly recurved, 12 to 25 mm. long, 1 to 3 mm. wide in the dried condition, with the margins revolute, linear, attached by a broadened base, obtusish, having a strong midrib, sharply prominent underneath, the venation obscure, the lower teeth extended in yellowish-white, rigid bristles, some longer than the width of the leaf at the point of their origin, the upper successively shorter, the black glands somewhat crowded in two irregular rows and of irregular shape and size. Heads few, solitary at the ends of the branchlets, the peduncles slenderly filiform, some 3 or 4 cm. long. Heads about 6 mm. long and nearly half as broad, the involucre turbinate, two-thirds or more of their length, the scales 4, slightly

unequal, about 3.5 mm. long and one wide, oblong, slightly mucronate, the middle portion greenish, the margins scarious. Disk-flowers about 8, the akenes linear, 4 mm. long, sparsely pilose, the pappus very sparse, of sub-plumose bristles with dilated base and very fine short hairs between them, about as long as the akenes. Disk-corollas rose-colored, slightly exceeding their pappus, very little expanded above, the short blunt lobes slightly unequal, the short, blunt style-branches exserted, rough with short, thick hairs.

Rays about 4, five mm. long, erect, purple, linear, sub-entire.

"Local on dry banks and rocks below 1,000 feet, near Bonda, July to October. Has a strong mint-like odor." (Herbert H. Smith, Colombia, No. 528 pp.)

Very near Lehmann's 933, but the disk-corollas of the latter are little more than half as long and of different shape, and much shorter than the pappus. Species near *P. diffusa* H. & A.

Pectis densa.

Glabrous, the stems diffusely spreading, the foliage densely matted, the inflorescence abundant. Branches slender, terete, red-purple, the internodes about 1 cm. long. Leaves, 5 to 15 mm. long, 1 to 2 mm. wide, linear, the base broader and clasping, the summit acute, the margin revolute, setose-serrate, the midrib very strong, the glands elongated, brown. Peduncles filiform, about 2 cm. long, the heads 5 mm. long and half as broad, the involucre turbinate-cylindric, 3 mm. long, the scales 4, oblanceolate, acutish, the summit lightly ciliate. Rays about 4, the purple corollas erect, slightly exceeding the disk, slender, oblanceolate, sub-entire. Disk-corollas shorter than their pappus, moderately dilated above, distinctly lobed, the lobes unequal, the styles little exserted. Disk-akenes two-thirds the length of the corollas, black, stout, oblong, strongly white hispid, the pappus of few strongly serrate bristles, dilated at the base, with short bristly chaff between, slightly exceeding the corollas.

Species very near *P. rosea*, but the disk-corollas of different shape and shorter than the pappus, and the habit of the plant and foliage very different.

"Near Bonda, 250 feet, November 16. Local and rather rare in open lands. An infusion of the plant used as a febrifuge." (Herbert H. Smith, Colombia, No. 528, pp.)

Whether Mr. Smith gave the same number to two species by error, or whether he believed them the same, I do not know.

Liabum biattenuatum.

Canescent throughout except the upper leaf-surfaces, which are deep-green and finely and conspicuously reticulate. Stems loosely twining, 2 to 3 m. long, the branches slender, the upper internodes 4 to 5 cm. long. Leaves 8 to 12 cm. long, including the slender petiole, 1 to 2 cm. wide, linear-lanceolate, gradually acuminate and acute at both ends; obsoletely and distantly serrate, the minute teeth salient; thin. Panicles axillary and terminal, the former about half the length of their leaves, slenderly short-peduncled, linear-bracted, the heads short-peduncled. Heads 4 to 5 mm. long, the involucre about two-fifths of the length. Young involucres narrowly campanulate, the scales appressed, with broad green middle portions, in about 5 series, the outer successively shorter, from ovate and obtuse to lanceolate and acuminate, thick and rigid, the mature involucres broadly campanulate, brown, the tips of the scales somewhat spreading. Receptacle slightly convex, alveolate, scarcely scaley, but roughened. Ray-florets and disk-florets each 4 to 6, the ray corollas imperfectly developed, yellow, moderately exceeding the disk, narrow, minutely notched at the summit. Disk-corollas divided nearly half-way, the lobes lance-linear, obtuse. Anthers pale-yellow, slightly exserted, slender, the basal appendages obtuse. Style long-exserted, deeply lobed. Akenes 2 mm. long, slender, broader upward, bristly-hairy. Outer pappus nearly as long as the akene, stouter than the inner, which is abundant, tawny, scabrous and about 6 mm. long.

"Observed only once, on ridge in edge of forest, Sierra del Libano, 5,500 feet, January 19." (Herbert H. Smith, No. 2013).

Mr. Smith has another collection under this number, which may be regarded as a variety. It has shorter and broader leaves, with shorter petioles and distinctly serrate leaves.

Liabum subumbellatum.

Stems and lower leaf-surfaces white-floccose, the peduncles and involucres more or less ferruginous. Stems slender, sub-quadrangular, the internodes 10 to 15 cm. long. Leaves 5 to 12 cm. long, 2 to 5 cm. broad, lanceolate, gradually contracted into a short petiole-like base, acuminate and acute, obsoletely serrate with very small, distant, sub-salient teeth, dark-green above, white underneath, thin, the venation slender, one or two principal pair about midway between the midrib and the margin. Corymb terminal, few-flowered, broad and loose, the branches long-peduncled, some with a single head. Heads 3 or 4 mm. long, and twice as broad, as pressed, the broadly campanulate involucre nearly equaling the pappus, the base lightly impressed. Scales in about 6 series, lanceolate, acute, the outer

successively shorter, ovate, thick and rigid, the inner narrowly lanceolate, long-acuminate, scarious. Rays sub-2-serialled, the akenes short, oblong, minutely hispid, the pappus white, serrate, the outer very sparse, of short bristles, the inner fairly copious. Tube of the ray-corollas very slender, nearly as long as the limb, which is linear-oblanceolate and minutely 3-toothed. Style long-exserted, the lobes very long. Akenes of the disk similar, but a little larger, the pappus similar, the receptacle densely chaffy with white, very narrow and bristle-like scales. Disk-corollas slightly exceeding the pappus, abruptly expanded into the limb, which is lobed more than half way, the lobes narrow.

"On Rio Palace, highlands of Popayan, 1,500–1,600 M., November, 1886." (Lehmann, No. 1146.)

Liabum stipulatum.

White-flocose, except the involucres, the upper leaf-surfaces sparingly so. Stems stout, erect, branching, a meter high, strongly angled and sulcate, the upper internodes 10 cm. or more long. Upper petioles (only the upper leaves seen) 4 or 5 cm. long, broad, margined, subtended by short, broad, rounded, stipule-like appendages, the blades about 20 cm. long, and two-thirds as wide, triangular-ovate, the base sub-truncate and abruptly produced into the petiole, the summit short-acuminate, the margin serrulate with minute salient teeth; two principal veins ascending from near the base, the venation slender and coarsely reticulate. Terminal corymb sessile in a pair of small, narrow leaves, compound, very broad, its branches long-peduncled. Heads mostly peduncled, the peduncles of variable length, the heads 7 or 8 mm. long and of greater breadth, as pressed, the flowers little exceeding the longer involucral scales. Involucre broadly campanulate, its scales in about 5 or 6 series, all lanceolate and acuminate, with green middle portions, the outer successively shorter, the innermost narrowly lance-linear, all appressed. Rays sub-two-serialled, yellow, slightly exceeding the disk, two-thirds of their length very slender and pilose, the upper third oblanceolate, minutely 3-dentate. Receptacle foveolate, coarsely hairy. Disk-corollas about 5 mm. long, regularly infundibular, lobed a third of their length, the lobes lanceolate, obtuse. Anther cells obtuse at the base. Style-branches elongated, pilose. Akenes short, sparsely pilose. Outer pappus almost absent, the innner short-plumose, nearly white.

"Rare in clearings, 3,500–5,000 feet. Collected at Las Nubes, 4,500 feet, February 7." (Herbert H. Smith, No. 200.) The same as Lehmann's 1147, from Popayan.

This species is very near *L. fulvo-tomentosum* O. Kuntze. It appears by its superficial characters to be the same as Triana's 102 and 1140 and Kalbreyer's 650.

Liabum falcatum.

More or less floccose-puberulent, with the exception of the upper leaf-surfaces. Stems erect or ascending, a meter high, only the upper portions seen, slender, sub-quadrangular and lightly sulcate, the internodes 12 to 18 cm. long. Petioles about 1 cm. long, stoutish, the blades 6 to 12 cm. long, 2 to 4 cm. broad, long-acuminate and acute, abruptly contracted into the petiole, more or less falcate toward the summit, serrate with very small ascending teeth, white underneath, where the 3 slender brown ribs, starting from the summit of the petiole, are conspicuous, green above, where the venation is not conspicuous, thin. Panicles crowded in a terminal corymb, with occasional smaller ones in the upper or lower axils, stoutly peduncled, the flowering portion 2 to 3 cm. long, linear-bracted, the peduncle and rachis brown-tomentose, the heads mostly sessile or very short-peduncled. Heads about 8 mm. long, the involucres nearly equaling the pappus, its scales in about 6 series, the outer short, ovate, acute, thick, the innermost thin, long-acuminate and acute. Ray-corollas exceedingly slender, not or little exceeding the involucre. Disk flowers numerous, the corollas yellow, the exceedingly slender tube expanded abruptly into the limb, which is half as long as the tube and three times as wide, and lobed more than half way down. Anthers small, the cells obtuse at the base. Style slender, little exceeding the anthers, its branches short. Akene small and slender, hispid. Outer pappus sparse, short and slender, the inner copious, slender, short-plumose. Receptacle densely chaffy, the chaff slender, acuminate and acute.

"Rare on rocks on the banks of streams in the forest, 1500-3,000 feet. January 20." (Herbert H. Smith, No. 2012.)

Liabum acuminatum.

White-floccose throughout, except the upper leaf-surfaces. Stems slender, erect or ascending, angled and sulcate, the internodes 3 to 5 cm. long, or the uppermost much longer. Petioles slender, 8 to 16 mm. long, the base lightly dilated and clasping. Blades 6 to 12 cm. long, 1 to 3 cm. broad, lanceolate, the base acuminate, the summit long and narrowly acuminate and acute, finely serrate with salient teeth, 3-nerved, the lateral pair starting from the midrib above the petiole and running near the margin. Corymb terminal, linear-bracted, small, densely flowered, the heads sessile or very short-peduncled, occasionally smaller corymbs in the upper axils. Heads about 6 mm. long, the involucre nearly equalling the pappus, campanulate, the

scales in about 6 series, the outer successively shorter, lanceolate, acuminate, thick, rigid and somewhat pungent. Rays densely arranged in two series, exceedingly slender, their styles very long-exserted and very deeply lobed. Receptacle foveolate, finely short-hairy. Akenes narrow-pilose. Pappus copious and fine, white, serrate. Disk-corollas very slender, slightly exceeding their pappus, the limb divided nearly to the base, the lobes linear-oblanceolate. Anther bases acutish.

"Machichoirisa, Bolivia, 3,500 feet, August 3, 1902" (R. S. Williams, No. 1605.)

Very near Lehmann's No. 1146, but the rays much more numerous, the hairs of the receptacle different and the leaves distinctly petioled.

Moquinia macrocephala.

Younger portions of stem pilose with spreading hairs, the lower leaf-surfaces and inflorescence densely white-tomentelate. Branches elongated, ascending, rather stout, lightly angled or terete, brown-purple. Petioles 1 cm. long, slender, invested at the base with small, obliquely ovate, tomentose, stipule-like appendages. Blades 6 to 10 cm. long, 2.5 to 3.5 cm. broad, oblanceolate, and bi-acuminate and acute, thick, shining and finely reticulate-wrinkled above, the coarsely reticulate venation lightly prominent underneath, the margin entire, thinly revolute. Corymb compound, more or less leafy-bracted, the branches long-peduncled, densely flowered at the summit, the heads short-peduncled, about 1.5 cm. long. Involucre two-thirds the length of the head, narrowly campanulate, the scales appressed, obtuse, in 5 or 6 series, the outer broadly ovate and successively shorter, the inner oblong, more or less purple toward the summit. Akene linear-oblanceolate, 5 mm. long, minutely pubescent. Pappus 1 cm. long, rather coarse and sparse, tawny. Corolla-tube equaling the pappus, slightly expanding above, the lance-linear recurved lobes equaling the corolla lobes. Style-branches elongated, recurved, the thickened summits pilose.

Unduavi, North Yungas, Bolivia, 3,000 M., November, 1910. A shrub 3 or 4 M. high. (Buchtien, No. 3080.)

Lycoseris oblongifolia.

More or less white-floccose, except upper leaf-surfaces. Branches elongated, simple, flexuous, reddish, angled and finely sulcate, the internodes about 2 cm. long. Leaves 8 to 12 cm. long, 2 to 3 cm. broad, oblong, bi-acuminate, the summit slenderly mucronate, the base tapering into a short petiole, entire, thickish, above bright green, underneath white-floccose, strongly 3-ribbed, the lateral pair starting above the base, all

light-colored on the upper surface; conspicuous floccose buds in the axils. Head solitary and terminal, sessile or sub-sessile, 2 cm. long, and about 3 cm. broad, as pressed, only the sterile ones seen. Involucre broadly campanulate, tomentose or floccose. Scales in about 6 series, the outer successively shorter and broader, but all lanceolate, acuminate, pungent with brown tips, 3 to 5-nerved, the innermost nearly equaling the disk. Ray-corollas purple, thick and semi-rigid, the tube about 5 mm. long, the oblong lower lip abruptly spreading, nearly 1 cm. long, 3-lobed, the lobes lance-oblong and obtuse, the inner lip of two hyaline rigid segments, about one-third the length of the outer lip and narrowly linear-lanceolate, acuminate and acute. Stamens wanting in the ray-flowers, the style reaching to about the middle of the limb, stout, glabrous, very shortly 2-lobed, the lobes obtuse, erect and rigid. Tube of disk-corollas about 1 cm. long, cylindric, the limb nearly as long, 2-lipped, the outer lip divided to the base into three similar segments. Pappus in a single series, sparse, strongly serrate, and at the summit plumose, about equaling the corolla. Anthers about 7 mm. long, including the basal setae, enclosing a style which does not quite reach their summit.

"A shrub with long, diffuse branches, (4 to 20 feet). Occasional in open lands and thickets, from 4,500 feet down to sea-level at Las Nubes, Onaca, Bonda, etc. Begins to flower about December 25. It is scandent, sometimes attaining 30 feet." (Herbert H. Smith, Colombia, No. 661). Mr. Smith sends another specimen under same number but with different locality and date and with leaves shorter but twice as broad. Of this he says "A broad-leaved form collected near Cacagualito, 1,500 feet, December 26. The leaves vary greatly in breadth, even on the same plant." This specimen appears to be identical with Haye's Panama, No. 338.

Onoseris alata.

More or less white-floccose throughout except the upper leaf-surfaces, the purple branches sparingly so. Woody caudex stout, erect, bearing a number of leaf-scars and at its crown a rosette of leaves and peduncles. Petioles 7 to 15 cm. long, 6 to 10 mm. wide, inclusive of the strong green wings, which broaden downward and again contract toward the base. Blades 7 to 15 cm. long, and equally broad at the cordate base, triangulate and somewhat hastate, coarsely and distantly dentate, the teeth very small and salient, the sinuses shallowly concave, the 5–7 principal veins originating together at the summit of the petiole, the rest of the venation slender and very coarsely reticulate, thin, white-floccose beneath, and light-green above,

the summit obtuse or barely acute. Peduncles 3 to 6 dm. high, very slender and sparingly and slenderly long-branched, coarsely angled, purple-red above, the heads few, slenderly and unequally peduncled, 15 to 20 mm. long and broad, the turbinate involucre equaling the pappus, its scales in 7 or 8 series, all elongated-lanceolate except the outermost, acuminate, thick and rigid, appressed, green above. Receptacle plane, foveolate, naked. Purple rays in a single series, moderately exceeding the pappus, hermaphrodite and fertile but the stamens apparently infertile. Ray-akenes oblong, 3 mm. long, the copious whitish pappus half the length of the corolla, serrate, the corolla 20 mm. long, the tube 8 mm., the upper lip 4 mm. long, of two filiform divisions, the lower lip 3 mm. broad, oblanceolate, truncate, 3-toothed, the teeth small, ovate, obtuse, the exserted anthers 3 or 4 mm. long, rigid, acuminate and acute, similar to those of the disk-flowers, but apparently sterile. Mature disk-akenes 6 mm. long, linear-oblong, 1 mm. thick, reddish-brown, white-pilose, their pappus about equaling the corolla, which is 12 mm. long, equally cylindrical, 1.5 mm. thick, rigid, the lobes 1 mm. long, ovate, obtuse, little spreading, the anthers little exserted, about 6 mm. long, the basal appendages filiform, the filaments stout. Style stout, stigma 2-lobed.

"In dry gravelly and clayey soil at Coroico, Yungas, Bolivia, July 30, 1894, the flowers rose-colored." (M. Bang, No. 2365.)

Very near *O. sagittatus*, ("*Seris sagittatus*" Rusby) but clearly distinct by its broadly winged petioles and different ray and disk-florets.

Jungia grossulariaefolia.

Short-hairy and somewhat scabrous, the branchlets stout, very flexuous and rough-nodose, apparently ascending from partially decumbent or declined stems. Petioles slender, 1 or 2 cm. long, the blades 1.5 to 3 cm. broad and not quite so long, sub-rotund, some of them slightly cordate, bearing on each side 3 or 4 large ovate teeth, their summits varying from acutish to rounded, some of them obscurely crenate-dentate; thin, bright-green, the venation slightly prominent above, strongly so beneath, where about 5 strong ribs radiate from the base, the venation finely reticulate, the finer veins blackish-purple on the lower surface. Peduncles terminal, elongated, very slender, very flexuous, very openly and loosely branched, the ultimate peduncles almost capillary, the bracts lance-linear, attenuate. Involucre 8 mm. long, the scales linear-lanceolate, acuminate and acute, the outer longer. Akenes numerous, 5 mm. long, very slender, tapering upward. Pappus 7 mm. long, very fine, copious, white. Disk-scales 6 mm. long, lanceolate, hyaline. Corolla-tube a little shorter than the pappus, the lower

lip lanceolate, entire, acutish, strongly recurved, shorter than the upper, which is 2 mm. long, with a broad, 3-lobedsummit, the lobes obtuse. Anther-appendage shortly exserted.

"Cotana, near Ilimani, Bolivia, 2600 M. altitude, November, 1911." (Otto Buchtien, No. 3306.)

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